Analysis of Self-Employment in Prairie Canada from 1987-2006

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ABSTRACT

This paper attempts to provide a basis for future regional entrepreneurship and economic development analysis by studying a particular subset of the labour force in Prairie Canada, self-employed individuals, not employed in agriculture, with employees (SEWE) to test the hypothesis that economies with a higher proportion of entrepreneurs will grow persistently faster than economies with a smaller proportion. The analysis begins by estimating a longitudinal regional participation percentage (or rate) of entrepreneurs for 20 economic regions (ERs) of Prairie Canada from 1987-2006 and examines whether these percentages varied over time. This paper finds the expected regional entrepreneurship percentage to be 5.01%. The SEWE regional participation percentages vary not only from region to region but within regions over time. This paper also analyzes whether there are regions which have consistently had higher entrepreneurship participation percentages and have these regions been rewarded with higher levels of job creation.

Various techniques are used to study the critical questions of this paper. These techniques include simple graphs, regression analysis and the development of a new measurement tool which incorporates relative entrepreneurship participation over time and subsequent job creation (employment) numbers. This alternative analysis is executed to further evaluate whether higher entrepreneurship participation percentages are rewarded with more growth as measured by employment figures, while incorporating the time lag of business creation, growth and/or closure on job creation.

Although this paper supports the widely held intuitive view that economies with a higher proportion of entrepreneurs in the labour force will grow persistently faster than economies with a smaller proportion the evidence is not definitive nor could a direct causal effect be established as higher proportions of entrepreneurs is no guarantee of higher levels of job creation.

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DEDICATION

To my wife and family who supported me through this endeavour.

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Abbreviation	
ASE	Average SEWE participation percentage for the study year and years prior (l-1)
BS	Business Stock
ER	Economic Region
FTE	Full-Time Employment
GDP	Gross Domestic Product
GFTE	Growth in Full-Time Employment
GNP	Gross National Product
GTE	Growth in Total Employment
KST	Knowledge Spillover Theory of Entrepreneurship
LM	Labour Market
LMA	Labour Market Areas of the United States of America
NGT	New Growth Theory
OECD	Organization of Economic Cooperation and Development
R&D	Research and Development
RHS	Right Hand Side
RRFTE	Relative Rate of Full-Time Employment
RRSE	Relative Rate of Self-Employed
RRTE	Relative Rate of Total Employment
SEWE	Self-Employed individuals, not employed in agriculture, with employees
TE	Total Employment
UE	Unemployment Rate
VAT	Value-Added Tax

CHAPTER 1
INTRODUCTION

> The entrepreneur is the source of all dynamic change in an economy, and accordingly, the capitalist system cannot be understood except in terms of the conditions giving rise to entrepreneurship[1]
>
> The entrepreneur is at the same time one of the most intriguing and most elusive characters in the cast that constitutes the subject of economic analysis[2]

Government Policy and Economic Theory

Government policy makers and analysts interested in economic development, economic growth and job creation have been influenced by three distinct economic theories and findings. First, is the work of Joseph A. Schumpeter, who authored, *The Theory of Economic Development* (1934), which emphasized the role of the entrepreneurs and innovation in economic development. Schumpeter described the entrepreneur as "the fundamental phenomenon of economic development."[3] Next, is David Birch's work on small business and job creation. The third and final component is the development of New Growth Theories (NGT) or endogenous growth. This paper attempts to capture the effects of these three influences.

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[1] Blaug, 1995, p.8
[2] Baumol, 1968, p.71
[3] Schumpeter, 1934, p.74

Study Overview

Canadian political and community leaders armed with their knowledge of the importance of entrepreneurship within innovation, job creation and economic development have placed much emphasis on the entrepreneur within the local, regional and national economies. This emphasis is based upon the widely held intuitive view that entrepreneurship is important for growth. That is, economies with a higher proportion of entrepreneurs will grow persistently faster than economies with a smaller proportion, with growth being defined as the increased percentage of full time jobs within the region. Based upon the above hypothesis, this paper attempts to provide a basis for future regional entrepreneurship and economic development analysis by calculating an expected regional percentage of entrepreneurs within a geographic region. Further to estimating this expected level, are there regions which have consistently had higher entrepreneurship percentages and thirdly, have these regions been rewarded with higher levels of job creation?

The study begins by analyzing the Labour Force Historical Data for 20 economic regions[4] (ERs) of Prairie Canada from 1987-2006. The Labour Force Historical Data contains information

[4]An economic region is defined by Statistics Canada as containing Census Divisions (CD), map provided in appendix. An economic region is a standard unit created in response to the requirement for a geographical unit suitable for the presentation and analysis of regional economic activity. Such a unit is small enough to permit regional analysis, yet large enough to include enough respondents that, after data are screened for confidentiality, a broad range of statistics can still be released. The regions are based upon work by Camu, Weeks and Sametz in the 1950s. At the outset, boundaries of regions were drawn in such a way that similarities of socio-economic features within regions were maximized while those among regions were minimized. Later, the regions were modified to consist of counties which define the zone of influence of a major urban centre or metropolitan area. Finally, the regions were adjusted to accommodate changes in CD boundaries and to satisfy provincial needs. Although there are 22 ERs in Prairie Canada, the northernmost ER of Manitoba and Saskatchewan are combined to their southern adjoining ER to make 20 ERs.

from the monthly Labour Force Surveys compiled by Statistics Canada. This data set contains a specified subset of the labour force in Prairie Canada, self-employed individuals, not employed in agriculture, with employees (SEWE), which will be used as the proxy for the entrepreneur. Initial analysis normalizes the SEWE absolute figure by making it a percentage of the total regional labour force. These SEWE percentages are charted to answer whether there are varying levels of entrepreneurship percentages across and within Prairie Provinces and regions. In addition, did the regional SEWE participation percentages vary over time? This same labour force dataset is used to answer the second part of this question.

The second and third questions of this paper will be studied under various techniques including simple graphs, regression analysis and the development of a new measurement tool which incorporates relatives rates of SEWE in a region, the time lag of business creation, growth and/or closure with job creation (employment) numbers. This alternative analysis is executed to further evaluate whether higher entrepreneurship participation percentages are rewarded with more growth as measure by employment figures.

Since the majority of literature reviewed on the topic of entrepreneurship and job creation centres on the effects of unemployment to either 'push' or 'pull' individuals into entrepreneurship, much of the analysis will centre on whether a correlation exists between changes in unemployment rates and the percentages of SEWE, both as a dependent and independent variable. This analysis follows the models developed by Audretsch, Carree and Thurik (2001). This paper also attempts an early and simplified analysis of why various ERs are 'entrepreneurial' by performing regression analysis similar to Georgellis and Wall (2000) with an emphasis on regional unemployment levels.

Although the causal relationship between population growth and entrepreneurship as to which precedes the other is yet to be defined, this paper is based upon the assumption that entrepreneurship is the precursor to population and job growth. (Schumpeter 1934, Van Stel and Storey 2002 (a)(b), Acs and Armington 2006)

Outline

The thesis is organized as follows. Chapter 2 will provide a review and overview of theoretical arguments and empirical findings as to why entrepreneurship is important to economic development and growth, by explaining entrepreneurship's role in innovation, job creation and endogenous growth – the NGT. Chapter 2 also provides a review and overview of theoretical arguments and empirical findings for self-employment (i.e. entrepreneurship) as a dependent variable influenced by unemployment and the reverse, unemployment levels and/or rates influenced by entrepreneurial measures. Chapter 3 outlines the basis for choosing the variables used against past theoretical choices by discussing the limitations of certain variables, model designs and methodology. Chapter 4 discusses the empirical results of the various tests and models. Chapter 5 provides an alternative analysis to measure whether higher entrepreneurship participation percentages are rewarded with higher growth while utilizing the same base data gathered. This new measurement tool utilizes relative rates and rolling averages. Chapter 6 discusses the utilization of the SEWE variable within various models, and Chapter 7 provides a summary of the paper and future research directions.

CHAPTER 2
LITERATURE REVIEW

The two central questions of this thesis are: what is an average participation percentage of entrepreneurs in a region and do regions with above average entrepreneurship percentages have higher job creation rates. Thus this paper asks the same question as Van Stel and Storey (2002(a), 2002(b)) theoretical review, does "a relationship exist between the extent to which a geographical area is 'entrepreneurial' and the extent to which it is 'economically successful'?"[5] or more succinctly, is there a correlation between entrepreneurship and economic growth as measured by job creation?

This chapter reviews literature covering the separate but interrelated economic topics of unemployment, job creation, innovation and economic growth models as these relate to entrepreneurship. The literature reviewed forms the basis and background for this thesis because it describes the interrelationship between Schumpeter, Birch, NGT and potential public policy.

Defining Entrepreneurship and its Role in Economic Development

Prior to reviewing the central question: is there a correlation between entrepreneurship and economic growth as measured by job creation, several questions arise which require discussion on entrepreneurship and economic development. These questions include, what is an entrepreneur, how do you describe entrepreneurship, does entrepreneurship have a role in economic development, does entrepreneurship have a role in NGT and if it does have a role how does it fit. Two additional questions regarding entrepreneurship and economic development will

[5] Van Stel and Storey 2002(a), 2002 (b), p.3

be addressed within Chapter 3: how do you measure entrepreneurship; and do we have the dataset to test the correlation.

Baumol (1993) suggested "the entrepreneur is the specter who haunts our economic models."[6] Defining the entrepreneur has been described as being similar to "hunting the Heffalump"[7], the North American equivalent of Snuffaluffagus, known to exist but the general public is unable to provide a uniform or consistent description.

Carree et al. (2002) and Van Stel et al. (2002) initiate their discussions on economic development and business ownership with reference to the impact and influence of Joseph Schumpeter, who provided a central role for the entrepreneur (and innovation) within economic development.

> In *The Theory of Economic Development* he (Schumpeter) emphasizes the role of the entrepreneur as prime cause of economic development. He describes how the innovating entrepreneur challenges incumbent firms by introducing new inventions that make current technologies and products obsolete. This process of *creative destruction* is the main characteristic of what has been called the Schumpeter Mark I regime (Schumpeterian entrepreneurship). In *Capitalism, Socialism and Democracy*, Schumpeter focuses on innovative activities by large and established firms. He describes how large firms outperform their smaller counterparts in the innovation and appropriation process through a strong positive feedback loop from innovation to increased R&D activities. This process of *creative accumulation* is the main characteristic of what has been called the Schumpeter Mark II regime.[8]

To Schumpeter "development consists primarily in employing existing resources in a different way, in doing new things with them, irrespective of whether those resources increase or not." [9] "The carrying out of new combinations we call "enterprise"; the individuals whose function it is to carry them out we call "entrepreneurs."[10]

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[6] Baumol, 1993, p.197
[7] Kilby, 1971, p.1
[8] Van Stel and Storey (2002) p.9 – noted paragraph comes from Carree et al., 2002, p.276
[9] Schumpeter, 1934, p.68
[10] Schumpeter, 1934, p.74

For Schumpeter (1934), only when an enterprise is providing 'new combinations', being innovative, is it entrepreneurial, when it operates at the repetitive level, it is managed. Baumol (1993) provides a similar description by stating that there are two types of entrepreneurs, innovative and firm-organizing. Within *Job Creation in America*, Birch concludes that most small firms fall within two categories, 'income substitutors' and entrepreneurs. 'Income substitutors' are by far the largest component of small firms and usually reaches their maximum size of one or two employees quite quickly and remain there. Birch uses the title 'income substitutors because "their main purpose is to establish a substitute form of income that does not entail working for someone else."[11] Birch provides examples of the income substitutor, such as the pizza parlour owner, the video store owner or the retired executive who becomes a consultant. Birch describes the entrepreneur as being 'in sharp contrast' to the 'income substitutor' contending entrepreneurs know from the start that they are trying to build a significant corporation.

For Birch the entrepreneurial firms are based on innovation. Birch demands acceptance that innovation occurs in both high-tech and low-tech operations. He further demands "that the individual who takes a familiar product or service and updates it to meet current needs is as much an innovator as the one who creates something that appears entirely new."[12] Thus, Birch classifies innovation as having two forms: the creation of something novel, or the reshuffling of existing components to present the familiar in a new form. Moreover, the new or reshuffled product or service can either fill a new demand or replace an existing one by performing the task better or less expensively. He sees economic growth being dominated by a relatively few highly

[11] Birch, 1987, p.30
[12] Birch, 1987, p.64

innovative firms, most of which have started small and grew by creating a whole new way of making or doing something. Birch calls them 'high-innovative firms'.

Birch concludes "the best way to spot innovation would be by studying what it enables the firm to do – that is, to grow. The innovative firm - whatever the nature of its innovation – is able to outperform other firms in its field and by doing so, expand. …Whatever its nature, the innovation creates growth opportunities upon which the entrepreneur capitalizes."[13]

To assist him in spotting innovation, Birch develops a Growth Index created as an unbiased measure of growth (for firms and regions), which is computed by multiplying the absolute growth with the percentage growth (expressed as a decimal). Using the Growth Index, he found firms with measures of 21 or more comprised only 18% of the firms studied in the United States from 1981-1985 but these firms provided 86% of all new jobs created.[14] Birch concludes, "entrepreneurial firms are thus the key to job creation. Those economies that provide the proper environment for them to appear and grow flourish; those that fail to provide such an environment languish."[15]

As pointed out by Carree et al. (2002) and Van Stel et al. (2002) earlier in the chapter, within *Capitalism, Socialism and Democracy*, Schumpeter "asserts that the entrepreneur is becoming obsolete". Critics made the following harsh conclusions on Schumpeter's work, "Realizing that his description of entrepreneurial activity does not agree with modern capitalistic practices, he concludes not that his theory is inadequate but the lack of harmony between his theory and modern practices indicates capitalism is dying."[16] Kuznets (1966) hypothesized a continued negative relationship between economic development and the self-employment rate predicting

[13] Birch, 1987, p.69
[14] Birch, 1987, p.37
[15] Birch, 1987, p.38
[16] Meier and Baldwin, 1957, p.96

the rates steady decline. With self-employment rates declining in most Western countries until the mid-1970, it appeared Schumpeter was correct and the switch to the Mark II regime was in full swing. As reported by Acs et al. (1994) the decline did not continue as the self-employment rate in 15 of the 23 Organizations of Economic Cooperation and Development (OECDs) countries they studied started rising within the late 1970s early 1980s. Blau (1987) also documented that within the United Sates the bottoming out of the self-employment rate occurred in the early 1970s. It appeared the Mark I regime returned.

The divergence in the Schumpeter Mark I and Mark II theories has enormous implications in regional policies. With the emergence of David Birch's findings within *Job Creation in America*, that small business was creating the majority of jobs in America, a new emphasis was placed on the entrepreneur in developing and growing regional economies.

Schmitz (1989) develops a theoretical endogenous growth model, which predicts that an increase in the proportion of entrepreneurs in the work force leads to an increase in long-run growth, more succinctly, "economies with a higher proportion of entrepreneurs will grow persistently faster than economies with a smaller proportion"[17] in terms of productivity growth leading to economic growth.

For Van Stel and Storey (2002), there are three reasons why a geographical area is 'entrepreneurial' and the extent to which it is 'economically successful', where economic success is measured by more jobs.

The three reasons why more 'entrepreneurial areas' might generate more jobs:

- new firms themselves create jobs directly and so add to the stock of jobs;
- new firms constitute a (real or imagined) competitive threat to existing firms, encouraging the latter to perform better; and,

[17] Schmitz, 1989, p.722

- new firms provide the vehicle for the introduction of new ideas and innovation to the economy, which has been shown to be a key source of long-term growth, Romer (1986).

There are also three reasons for not expecting firm formation rates to generate more jobs:

- new firms directly contribute only a very small proportion of the stock of jobs in the economy;
- innovation is very much the exception rather than the rule amongst new firms; and,
- scale of job creation taking place in new firms varies considerably from firm to firm.

Van Stel and Story (2004) also provide a case for negative relationship between firm births and subsequent job creation derived from examining policies to stimulate new firm formations in 'unenterprising' areas. The reasoning is that a subsidized business forces other businesses out of the market place and once the subsidy ends the formerly subsidized start-up also closes.

Entrepreneurship's Role in Economic Growth – Theoretical Basis

Two compilation works are the main sources for the information contained within this section. These works are: Audretsch, Keilbach and Lehman's (2006) publication *Entrepreneurship and Economic Growth*; and Acs and Armington's (2006) publication *Entrepreneurship, Geography and American Economic Growth*. Both publications report on the development of economic growth theory through the last century. They both concur that the entrepreneur plays a role in modern economic growth theory. The theoretical basis for including the entrepreneur within modern growth theory is the Knowledge Spillover Theory of Entrepreneurship (KST). Audretsch et al. (2006) address two central questions: 'why does entrepreneurship matter? and 'how does entrepreneurship matter?' Acs and Armington (2006) attempt to answer 'why is entrepreneurship important for regional growth?' by specifically asking and answering 'what is the role of entrepreneurial activity and agglomeration effects in economic growth?'

Just as entrepreneurs were omitted from the neo-classical model of markets, they are absent in economic growth theory. Both publications recount three separate developments in economic growth theory: Solow's Growth model – the Capital Economy; Romer's Growth Model - the Knowledge Economy a basis for NGT or Endogenous Growth Theory; and finally the economy of the late 1990s and early 2000, the Entrepreneurial Economy.

Solow's economic growth model (1956) was based upon the neo-classical production function and two factors of production: physical capital and unskilled labour. This growth model claims that as capital and or labour is added output will increase, thus causing economic growth.

Assuming capital does not depreciate, labour forces do not grow, and technology does not change over time, the Solow production function has the form:

$$\mathrm{Y} = F(\mathrm{K}, L) \qquad (2.1)$$

where Y represents aggregate production, K is the capital stock, and L the labour force.

The Solow model views technological change, the rate at which new technology is created, as exogenous. Solow did acknowledge "that technical change contributed to economic growth, but in terms of his formal model, it was considered an unexplained residual, which falls like manna from heaven." [18]

Romer's analysis showed the residual of the model, accredited to technological change, was becoming too large for the model to be classified as a proper representation of economic growth. The development of the Endogenous Growth Theory challenges the view that technology is created exogenously and incorporates it within the model (Romer 1986, 1990, Lucas 1988).

Introducing technological progress in the production function, it takes the form:

$$\mathrm{Y} = F(\mathrm{A}, \mathrm{K}, L) \qquad (2.2)$$

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[18] Audretsch, Keilbach and Lehman, 2006, p.13

where A stands for the state of technology.[19]

Minor discrepancies occur between Acs and Armington (2006) and Audretsch et al. (2006) as to how Romer's (1990) model puts conditions on the stock of knowledge. For Acs and Armington, they disagree with endogenous growth models which consider the entire stock of technological knowledge as a public good.

Acs and Armington state, "the most original contribution of Romer (1990) is the separation of economically useful scientific-technological knowledge into two parts."[20] These two parts are the non-rival, partially excludable or near public good and the rival, excludable elements of knowledge.

In contrast Audretsch et al. (2006) state that within the Romer and Lucas models, "knowledge automatically spills over and is commercialized, reflecting the Arrow observation about the nonexcludability and exhaustive properties of new knowledge."[21]

Although this discrepancy is minor both publication highlight the economic reality that not all knowledge is "economic knowledge'. Audretsch et al (2006) refer to Arrow's work and state, "As Arrow points out, there is a gap between new knowledge and what actually becomes commercialized or new economic knowledge, A_c, and $A - A_c > 0$. In fact, the knowledge filter is defined as the gap between investments in knowledge and the commercialization of knowledge, or economic knowledge. The knowledge filter is denoted as θ, hence

$$\theta = A_c / A \quad \text{with} \quad 0 \le A_c \le A \quad \text{hence } \theta \in [0,1] \qquad (2.3)$$

Hence θ denotes the permeability of the knowledge filter."[22]

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[19] Acs and Armington, 2006, describe A as 'the state of technology', while Audretsch et al. , 2006, describe A within their model as 'the stock of knowledge capital', unless noted specifically within this document, these terms will be viewed as equivalent.
[20] Acs and Armington, 2006, p.27
[21] Audretsch et al., 2006, p.44

Acs and Armington (2006) acknowledge, "the basic short coming of the endogenous growth model is its failure to recognize that only some of the aggregate stock of knowledge (A) – normally from R&D – is economically useful, and that even economically relevant knowledge (A_c) is not exploited (or exploited successfully) if the transmission links are missing. Some A_c may not even be in the public domain."[23]

Within both their publications, the authors specify the accumulation of knowledge through private efforts or incumbent firms. The actual level of new technological knowledge used by the source is $\dot{A}_c$. Correspondingly, the remaining "untapped" part (1- θ) is opportunities, *opp*, that can be taken on by new firms. This portion is classified as entrepreneurial opportunities. Thus, we have:

$$\dot{A}_{opp} = (1-\theta)\dot{A} \qquad (2.4)$$

where $\dot{A}$ is the level of new knowledge.

"To merely explain entrepreneurship as the residual from $\dot{A}_{opp} = \dot{A} - \dot{A}_c$ assumes that all opportunities left uncommercialized will automatically result in the commercialized spillover of knowledge via entrepreneurship."[24] This is not true, as opportunities require receptors of the information, entrepreneurs, and the proper business conditions and market place to be viable.

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[22] Audretsch et al., 2006, p.45

[23] Acs and Armington, 2006, p. 31 (within the publication K is used as the factor symbol for knowledge, since K is used for the production factor physical capital, in references to Acs and Armington work A is used to replace K to provide consistency with Audretsch et al., 2006, and to avoid confusion with physical capital.)

[24] Audretsch et al., 2006 p.46

Knowledge Spillover Theory of Entrepreneurship

The traditional view of knowledge and innovation is that the firm exists exogenously and then invests in research and development or the augmentation of human capital through training and education of workers to endogenously create new knowledge and ideas. This view was formalized by Griliches (1979) in what he termed as the Model of the Firm Knowledge Production Function.

Conventional theories of innovation have the firm as the starting point. Within these theories the firms are exogenous and their performance in generating technological change is endogenous. Within Griliches' (1979) model of the knowledge production function, "firms exist exogenously and then engage in the pursuit of new economic knowledge as an input into the process of generating innovative activity. The most decisive input in the knowledge production function is new economic knowledge"[25] Griliches' view was firm investments in knowledge inputs were required to produce innovative output. With investment being the basis of the knowledge economy, the cursory assumption, based upon new and/or small firms having limited financial capital to invest in new economic knowledge, would be the further demise of the small and new enterprise. The evidence does not support this assumption (Birch 1987).

The explicit inclusion of the entrepreneur in the recent growth theories is a result of the empirical evidence in two areas. These areas are: the validity of the knowledge production function at the firm level and the role of small business in job creation. Audretsch et al. (2006) conclude; 'studies linking knowledge inputs to innovative outputs were more ambiguous when analyzed at the unit of the firm, especially when the data set included a broad spectrum of firm

[25] Audretsch et al., 2006, p.18

sizes spanning both small and large enterprises.'[26] They also conclude 'small and new enterprises serve as an engine of employment creation on both sides of the Atlantic.'[27]

Small and new firms have a limited access and ability to research and development but have been a driving force in job creation. How could this occur? Audretsch et al. (2006) answer this question/contradiction by forwarding two theories: the knowledge theory of entrepreneurship and the Knowledge Spillover Theory (KST).

The knowledge theory of entrepreneurship is based upon inverting the traditional approach to entrepreneurship, which holds the context constant and then asks how the cognitive process varies across different individual characteristics and attributes. The theory assumes the individual characteristics are constant and then analyzes how placing that same individual in different contexts influences the cognitive process inducing the entrepreneurial decision. "This leads to a different view of entrepreneurship. It is not a phenomenon exogenously determined by preconditioned personal attributes and family history, but instead entrepreneurship is an endogenous response to opportunities generated by investments in new knowledge made by incumbent firms and organizations, combined with their inability to fully and completely exhaust the ensuing opportunities to commercialize that knowledge"[28] Audretsch et al. (2006) claim this "endogenous response to the incomplete commercialization of new knowledge provides the missing link in the recent economic growth models. As a conduit of knowledge spillovers, entrepreneurship serves as an important source of economic growth that otherwise remains unaccounted for. Thus, entrepreneurship is the mechanism by which society more fully

[26] Audretsch et al., 2006, p.29
[27] Audretsch et al., 2006, p. 25
[28] Audretsch et al., 2006, p.35

appropriates its investments in the creation of new knowledge, such as research and education."[29]

The KST posits that "new knowledge in and ideas created in one context, such as a research laboratory in a large corporation or university, but left uncommercialized or not vigorously pursued by the source, generates entrepreneurial opportunities. If the use of that knowledge by the entrepreneur does not involve full payment to the firm making the investment that originally produced the that knowledge, such as a license or royalty, then the entrepreneurial act of starting a new firm serves as a mechanism for knowledge spillover."[30]

The KST, therefore, shifts the fundamental decision-making unit of observation in the model of the knowledge production function from the exogenously assumed firm to individuals with the new economic knowledge. "Thus, KST is actually a theory of endogenous entrepreneurship, where entrepreneurship is an endogenous response to opportunities created by investments in new knowledge that are not commercialized because of the knowledge filter."[31] Due to the knowledge filter, entrepreneurship becomes central to generating economic growth by serving as a conduit for knowledge spillovers.

The cognitive process of recognizing and acting on perceived opportunities, emanating from knowledge spillovers and other sources, E, is characterized by the model of occupational (or entrepreneurial) choice, where E reflects the decision to become an entrepreneur, π^* is the profit expected from starting a new firm, and ω is the anticipated wage that would be earned from employment in an incumbent enterprise.

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[29] Audretsch et al., 2006, p.35
[30] Audretsch et al., 2006, p.39
[31] Audretsch et al., 2006, p.43

$$E = f(\pi^* - w) \qquad (2.5)^{32}$$

Since the expected profit opportunity accruing from entrepreneurship is the result of knowledge not commercialized by the source, entrepreneurial opportunities will be shaped by the magnitude of the new knowledge but constrained by the commercial capabilities and preferences of the source via the knowledge filter, hence:

$$E^* = f(\pi^*[\dot{A}_{opp}\{\dot{A}, \theta\}] - w) \qquad (2.6)$$

where A_{opp} is entrepreneurial opportunities, $\dot{A}$ is the level of new knowledge and θ denotes the permeability of the knowledge filter.

Audretsch et al. (2006) do not contend that knowledge spillover is the only source for entrepreneurial opportunities. One contextual variable, which also leads to entrepreneurial opportunity, is growth, especially unexpected growth. Hence, equation 2.6 can be rewritten as:

$$E = f(\pi^*[g_Y, \dot{A}_{opp}\{\dot{A}, \theta\}] - w) \qquad (2.7)$$

which states that the expected profits are based on opportunities that accrue from general economic growth, g_Y, on one hand and from potential knowledge spillovers, $\dot{A}_{opp}$, on the other, which is dependent on $\dot{A}$ the level of new knowledge and the knowledge filter, θ.

Therefore, the total amount of entrepreneurship can be decomposed into knowledge spillover entrepreneurship, which is denoted E^*, and entrepreneurship from rather traditional sources, that is non-knowledge sources, such as growth as $\overline{E}$, that is

$$E = \overline{E} + E^* \qquad (2.8)$$

Existing firms will respond to anticipated economic growth as they invest to expand their capacity to meet expected growth opportunities. If, however, there is any type of constraint in

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[32] Formulas used for equations 2.5 – 2.11 are attributable to Audretsch et al. (2006), p. 46-48

expanding the capacity of the incumbent enterprises to meet the (unexpected) demand, then the growth of Gross Domestic Product (GDP), g_{Y}, will generate entrepreneurial opportunities that have nothing to do with new knowledge, or:

$$\overline{\mathrm{E}} = f(\pi^{*}[g_{\mathrm{Y}}] - w) \qquad (2.9)$$

Both publications acknowledge there is a compelling array of institutional, financial, social and individual barriers to entrepreneurship, β, which needs to be incorporated within the model, thus (2.6) becomes:

$$\mathrm{E}^{*} = \frac{1}{\beta} f(\pi^{*}[\dot{\mathrm{A}}_{opp}\{\dot{\mathrm{A}}, \theta\}] - w) \qquad (2.10)$$

Since $\mathrm{E} > \mathrm{E}^{*}$, the total amount of entrepreneurial activity exceeds that generated by knowledge spillovers, equation 2.10 can be restated as:

$$\mathrm{E} = \frac{1}{\beta} f(\pi^{*}[g_{\mathrm{Y}}, \dot{\mathrm{A}}_{opp}\{\dot{\mathrm{A}}, \theta\}] - w) \qquad (2.11)$$

Equation 2.11 leads to the following propositions[33]:

Entrepreneurial Opportunity Proposition: Entrepreneurship will be greater in regions with a greater amount of non-knowledge entrepreneurial opportunities, such as growth.

Barriers to Entrepreneurship Proposition: Entrepreneurship will be lower in regions burdened with barriers to entrepreneurship.

Variations on the Knowledge Spillover Theory and Economic Growth

Within Acs and Armington (2006), several assumptions are made in order to investigate the relationships among entrepreneurship, geography and economic growth. These assumptions are:

1. New firms are assumed to be the primary mechanism to transmit knowledge.

[33] Audretsch et al., 2006 , p.49

2. Each new firm represents an innovation.
3. There are no interregional spillovers, only local.
4. The conditions for knowledge transmission and hence new firm formation vary across regions.
5. Entrepreneurial ability is distributed unevenly (and exogenously) across individuals.

Acs and Armington also claim,

> Two conditions thus are decisive for an increasing stock of knowledge (through R&D and education) to materialize to higher economic growth; first, knowledge has to be economically useful and, second, an economy must be endowed with factors of production that can select, evaluate, and transform knowledge into commercial use, that is, entrepreneurs. If these conditions are not fulfilled, an increase in knowledge stocks may have no impact on growth. Similarly, regions with smaller knowledge stocks may experience higher growth than regions more abundantly endowed with knowledge due to superior links to the market.[34]

For Acs and Armington, the exploitation of an opportunity is also determined by a community's entrepreneurial culture. This culture includes two interrelated components: first, the entrepreneurial orientation of the local population, and second, the distribution of entrepreneurial characteristics among local institutions. This provides a third variable in the expected profit opportunity function:

$$\mathrm{E}^{*} = \frac{1}{\beta} f(\pi^{*}[\dot{\mathrm{A}}_{opp}\{\dot{\mathrm{A}}, \theta, C\}] - w) \qquad (2.12)^{35}$$

where C is the extent of an entrepreneurial culture.

Hypotheses and Empirical Testing of the Knowledge Spillover Theory and Economic Growth

Acs and Armington (2006)

Three distinct questions form the basis of the empirical analysis of Acs and Armington (2006). "They are as follows: from growth theory (1) the role of knowledge in economic growth;

[34] Acs and Armington, 2006, p.42
[35] Acs and Armington, 2006, p.59

from the new economic geography (2) the role of agglomeration of knowledge; and from entrepreneurship theory (3) the role of cultures, competition, and occupational choice."[36] According to the new economic geography, agglomeration facilitates knowledge spillover, and according to new growth theory, knowledge spillovers determine per capita GDP growth, then it is not an unrealistic assumption that spatial economic structure affects macroeconomic growth.[37] Spatial economic structures describe the proximity of knowledge owners and potential users of knowledge.

In Acs and Arlington's attempt to investigate the relationships among entrepreneurship, geography and economic growth, they recognize that they need to analyze differences across local economic areas that are big enough to comprise the local labour market and consumer markets. To meet this requirement, their geographic unit of analysis is the Labour Market Areas[38] (LMAs) of the United States of America, of which there are 394 in total.

They also acknowledge that by far the most popular vehicle for exploiting newly discovered opportunities is the independent start-up. While independent startups are difficult to conceptualize in the empirical world, two types of empirical data exist for studying it. These two types of measures are, first, self-employment data and secondly, the founding of a new business with employees, which may or may not be incorporated. Acs and Arlington use the operational definition of entrepreneurial activity and use new firm formation: the process whereby an

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[36] Acs and Armington, 2006, p.17
[37] Acs and Armington, 2006, p.18
[38] The LMAs are aggregations of the 3,141 United States counties into 394 geographical regions based upon on the predominant commuting patterns (journey-to-work). These LMAs are defined according to the specifications of C.M. Tolbert and M. Sizer (1996) for the Department of Agriculture, using Journey-to work data from the 1990 U.S. Census of Population. Each LMa contains at least one central city, along with the surrounding counties that constitute both its labour supply and its local consumer and business markets.

individual or group of individuals, acting independently of any association with an existing organization, creates a new organization, as the unit of measure.

Acs and Arlington contend, "While the primary contribution of new firms are probably in the area of facilitating innovation and increasing productivity, this study is limited to analyzing their impacts on local employment, as a proxy for local growth."[39]

In Acs and Armington's cursory analysis, they plot the firm formation rates of the LMAs against their employment growth rates between 1991 and 1996. They note the variation in the firm formation rate is small, while the variation in employment growth rates is much larger. They have an upward sloping regression line which is estimated as having an R squared value of 0.58 for the 394 LMAs, suggesting that difference in formation rates account for 58% of the difference in growth rates.

For Acs and Armington, "the major hypotheses concerning the regional variations in firm formation rates are that: (1) higher formation rates are promoted by knowledge; (2) industrial restructuring away from manufacturing and toward smaller businesses should promote new firm formation; and, (3) the existence of an entrepreneurial culture should promote start-up activity.

To test those hypotheses, they estimate a regression model where the dependent variable is the 1995 + 1996 firm formation rate divided by the labour force (in thousands). The primary explanatory (independent or exogenous) variables include the share of college graduates and high school dropouts in the adult population as proxies for stock of knowledge, sector specialization as proxy for knowledge spillover potential, and the share of proprietors and average establishment size as proxies for entrepreneurial culture. They control for regional differences in unemployment, population growth, and income growth. Although the authors have

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[39] Acs and Armington, 2006, p.13, notes

access to10 years of annual firm formation rates, they choose not to use pooled cross-section time series regressions. They contend that "most of the independent variables describing the characteristics of the LMAs change very little over time, and the errors from omitted variables will be nearly identical for each LMA from year to year, and so the diagnostic statistics from such analysis would be very misleading."[40]

The regression analysis for all sectors provides positive and significant results for five of the eight explanatory variables used and one negative and significant coefficient. The strongest explanatory variable is sector specialization, followed by population growth, college graduates, high school dropouts, and income growth. The negative and significant coefficient was establishment size. Insignificant variables were; share of proprietors and the unemployment rate. Acs and Armington find "considerable variation in the new firm formation rates across regions, but very little variation over time."[41] The ability for similar firms to cluster plus have access to an educated and uneducated labour force appears important for firm formation.

[40] Acs and Armington, 2006, p.68, within footnotes
[41] Acs and Armington, 2006, p.75

Table 2.1 Regression Coefficients for Firm Formations Rates for All Sectors in the Labour Market Areas

Independent Variables	Standard beta coefficients	t-ratios
Establishment size	**0.36**	-7.08
Sector specialization	**0.46**	11.03
Share of Proprietors	-0.01	-0.29
High school dropout	**0.23**	5.09
College graduates	**0.29**	6.36
Population growth	**0.37**	7.81
Income growth	**0.16**	3.31
Unemployment Rate	0.08	1.91

Dependent variable is average number of firm formations for 1995 and 1996 divided by labour force

Adjusted R squared value 0.67

Standard beta coefficients bolded if significant at the 0.05 level

Number of observations is 394 LMAs

Source: Acs and Armington, 2006, p.69

They conclude the results "strongly support the new generation of growth models that suggest that knowledge is an important determinant of new firm formation and economic growth."[42] Acs and Armington also find that regional unemployment rates do not have any significant impact on regional formation rates when all industries are aggregated together.

In studying the relationship between entrepreneurship and employment growth Acs and Armington contend the KST leads to several theoretical issues. First, geographic proximity to the knowledge source significantly amplifies spillovers between research and innovating firms. Second, not all types of industrial structure promote knowledge spillovers equally. Third,

[42] Acs and Armington, 2006, p.75

knowledge spillovers do not appear to be constant over time, and they affect mature and young industry sectors differently.

Acs and Armington test the hypothesis that increased entrepreneurial activity that takes advantage of knowledge spillovers leads to higher overall growth rates of regional economies. They examine the variations in regional employment growth rates in the context of an endogenous growth model with a particular emphasis on knowledge spillover. The authors estimate a model that explains differences in regional employment growth rates as a function of entrepreneurial activity, agglomeration effects and human capital.

The employment growth rates for 1991-96 were calculated as the change in employment over that period divided by the mean of beginning and ending employment for each class of establishments.

Acs and Armington acknowledge that:

> employment in an area tends to keep pace with the growth of population in that area, other things being equal, and so it is useful to examine both the rate of increase in employment and how it differs from the rate of increase in population. It is not clear whether the growing economy is attracting the increasing population or the growing population is simply causing the economy to expand to keep up with local demand and supply.[43]

The average population growth is measured as a five-year change divided by the 1991 level.

Exogenous variables used for analyzing the local growth model include two measures for entrepreneurial activity; the new firm formation rate and share of proprietors in the area's labour force. Proprietors are members of the labour force who are also business owners, including those with employees and the self-employed who have no employees. The share of proprietors is defined for each LMA and year as the number of proprietors divided by the labour force in the same year. Two measures of agglomeration effects are used; sector specialization, as the number

[43] Acs and Armington, 2006, p.119

of establishments in each industry sector and region divided by the region's population in thousands. When dealing with all industries together, this variable represents business specialization – the intensity of business development per capita. To control for the vast difference in the physical density of economic activity in various LMAs, the authors use business density, defined as the number of establishments per square mile in that industry and region.

Measures of human capital include; share of adults with at least a high school degree, with adults defined as persons 25 years or older. The second measure of educational attainment is the share of college graduates, defined as the number of adults with college degrees in 1990 divided by the total number of adults.

To control for differences in the size distribution of businesses in each industry and region, the authors include average local establishment size, measured for each industry sector and economic area.

Several important results are evident for the estimations of annual growth rates averaged over each of the three three-year periods for 1990-93, 1993-96, and 1996-99 for the 394 LMAs for all industries together. First, the coefficient on the firm birth rate is always positive, large and significant. Human capital appears to be important for employment growth, even beyond its impact on firm formations. The greater the proportion of high school graduates within an area, the higher the employment growth rates. The impact of higher shares of college degrees was insignificant through the decade. It appears the access to a steady supply of unskilled labour is more important than an educated work force in firm births. The average size of establishments in an area is positively related to employment growth, after having found it was strongly negative to new firm formation rates. The authors note: "this tendency for greater growth in areas with larger

businesses is surprising, as it conflicts with the popular image of large old businesses reducing employment while smaller younger ones are growing".[44]

When all the industries are aggregated, the business specialization variable becomes a measure of the local density of business relative to the local density of people. They find a negative and statistically significant coefficient on business specialization, which suggests that areas with more businesses relative to their population tend to have less growth, rather than greater growth. They find this result throughout the decade.

The negative and statistically significant coefficients on establishment density suggest when other factors are the same, employment growth will be greater in regions that have less physical crowding in their industry. Thus, the agglomeration effect on employment growth seems to be negative for LMAs, after allowing for the impact of firm formation rate differences. This finding is acknowledged as being in contrast with much theoretical literature on agglomeration.

The coefficient on the share of proprietors is positive and significant for 1990; however, it is insignificant for the latter two periods. The authors suggest that larger shares of proprietors were associated with higher growth only in recession years. It is noted that the coefficient for the share of proprietors is barely one-tenth of that for entrepreneurial activity. The authors claim this finding indicates, "it is not so much the accumulated stock of entrepreneurial activity but the low that is important for economic growth. This result suggests that it is younger firms (age and not size per se) that are more important for promoting growth and productivity."[45]

In alternative model formations, Acs and Armington find more evidence of the importance of firm formation rates and human capital on regional employment growth. In a model that removes the new firm formation rate from the model, the equation loses most of it explanatory power. The

[44] Acs and Armington, 2006, p.133
[45] Acs and Armington, 2006, p.133

authors conclude "regional growth rate variation is closely associated with the regional variation in new firm formation rates"[46] and that "higher rates of entrepreneurial activity were strongly associated with faster growth of local economies."[47] Acs and Armington found "more than half of the explained variation in growth rates was attributable to the local variation in new firm formation rates."[48]

Acs and Armington conclude, "entrepreneurial activity is a key to an understanding of geographic differences in growth rates"[49] and that their results support not only the new growth theory but also those theories that suggest that entrepreneurship along with knowledge spillovers are important determinants of economic growth. "Without adequate entrepreneurship, growth will be less than with entrepreneurship, because you will have less-effective knowledge spillovers"[50]

The following summary table outlines Acs and Armington's findings of how regional variables have contradictory impacts on firm formation rates and employment growth.

[46] Acs and Armington, 2006, p.139
[47] Acs and Armington, 2006, p.141
[48] Acs and Armington, 2006, p.141
[49] Acs and Armington, 2006, p.149
[50] Acs and Armington, 2006, p.152

Table 2.2 Summary of impacts of regional variables on entrepreneurial activity and employment growth rates in United States LMAs in the mid-1990s

Independent Variables	Firm Formation rates	Employment Growth
Firm formation rate		+
Establishment size	-	+
Sector specialization	+	-
Business density		-
High school degree*	-	+
College degree	+	**0**
Population growth	+	
Income growth	+	
Share of Proprietors	**0**	**0**
Unemployment Rate	**0**	

+ indicates significant positive relationship generally found

- indicates significant negative relationship generally found

0 indicates variable tested and found not generally significant
Blank indicates relationship not tested

***** The coefficient on high school degree is negative of that on high school dropout share.

Source: Acs and Armington, 2006, p.144

Audretsch et al., (2006)

Based upon the KST, Audretsch et al., propose seven hypotheses for testing beyond the two propositions documented earlier. These hypotheses are:

Endogenous Entrepreneurship Hypothesis: Entrepreneurship will be greater in the presence of higher investments in new knowledge, ceteris paribus. Entrepreneurial activity is an endogenous response to higher investments in new knowledge, reflecting greater entrepreneurial opportunities generated by knowledge investments.

Economic Performance Hypothesis: Entrepreneurial activity will increase the level of economic output since entrepreneurship serves as a mechanism facilitating the spillover and commercialization of knowledge.

Location Hypothesis: Knowledge spillover entrepreneurship will tend to be spatially located within close geographic proximity to the source of knowledge actually producing the knowledge.

Entrepreneurial Performance Hypothesis: Opportunities for knowledge-based entrepreneurship, and therefore performance of knowledge-based startups, is superior when they are able to access knowledge spillovers through geographic proximity to knowledge sources, such as universities, when compared to their counterparts without a close geographic proximity to a knowledge source.

Entrepreneurial Access Hypothesis: Knowledge-based entrepreneurial firms will strategically adjust the composition of their boards and managers toward higher levels of knowledge and human capital so that they can contribute to the access and absorption of external knowledge spillovers.

Entrepreneurial Finance Hypothesis: Knowledge-based entrepreneurial firms will tend to be financed from equity-based sources, such as venture capital, and less typically from traditional debt-based sources, such as banks.

Economic Growth Hypothesis: Given a level of knowledge investment and severity of the knowledge filter, higher levels of economic growth should result from greater entrepreneurial activity, since entrepreneurship serves as a mechanism facilitating the spillover and commercialization of knowledge.

The Economic Growth Hypothesis suggests, ceteris paribus, a region endowed with a higher degree of entrepreneurial capital will facilitate knowledge spillovers and the commercialization of knowledge, thereby generating greater economic growth. The impact of entrepreneurial capital on economic performance leads to a modification of Equation 2.2 with the recognition of

an additional factor, entrepreneurship capital, E, can along with the traditional factors, also make an important contribution to economic performance.

$$\mathrm{Y} = f(\mathrm{K}, L, \mathrm{A}, \mathrm{E}) \qquad (2.13)$$

Where Y represents economic output, K is the stock of capital, L is the labour force, and A is the stock of knowledge capital.

Entrepreneurship Capital is the capacity of a geographically relevant spatial unit of observation, to generate new business startups. Audretsch et al. compute entrepreneurship capital as the number of startups in the respective region relative to the population, which they feel reflects the propensity of inhabitants to start a new firm.

Although Audretsch et al. perform testing on all their hypotheses this document will only highlight components relevant to specific hypotheses with emphasis on Location Hypothesis and the Economic Growth Hypothesis.

Audretsch et al. discuss the various measures for entrepreneurship, weighing the pro and cons, and decide to restrict their study to using new firm startups as the measure. In addition, their study restricts the geographic area to the counties of Germany.

In assessing the impact of entrepreneurship capital on regional GDP, Audretsch et al. use the following model:

$$\mathrm{Y}_i = \alpha \mathrm{K}_i^{\beta_1} L_i^{\beta_2} \mathrm{A}_i^{\beta_3} \mathrm{E}_i^{\beta_4} e^{\varepsilon_i} \qquad (2.14)$$

where subscript *i* represents the geographic area (counties), β_j represents output elasticities of the respective variable; that is, an increase of the corresponding variable by 1% correspondingly increases the left-hand side (labour productivity) by β_j percent. ε_i is a stochastic error term; it exponential specification indicates that Equation 2.14 is estimated in log form.

Within the model, output (Y_i) is measured as the gross value added corrected for purchases of goods, services, Value-Added Tax (VAT) and shipping costs. Physical capital (K_i) refers to the stock of capital used in the manufacturing sector of the county. Labour (L_i) is based on the reported number of employees liable to social insurance by county. Knowledge capital (A_i) is expressed as number of employees engaged in research and development (R&D) in the public and private sector.

When entrepreneurship capital is included in the production function model, the coefficient value is positive and statistically significant, indicating that entrepreneurship is a key factor in explaining variation in output across German regions. Audretsch et al., also assess the impact of entrepreneurship capital on regional labour productivity, and regional growth on labour productivity. Each regression finds that entrepreneurship capital exerts a positive influence on the dependent variable. The authors conclude that the econometric results supports the Economic Growth Hypothesis and suggest that entrepreneurship capital fosters economic growth.

> Whereas the Romer growth model assumed that knowledge capital is both necessary and sufficient for knowledge spillovers, in fact, entrepreneurship plays an important role in commercializing knowledge. Knowledge may be important for economic growth, but the capacity for that knowledge to be commercialized is also important. Entrepreneurship is one such mechanism facilitating the spillover of knowledge.[51]

In testing the Location Hypothesis with an emphasis on university spillovers, the authors confirm the hypothesis but conclude that the role of geographic proximity is more nuanced than the hypothesis suggests. In general, those universities with a higher knowledge capacity and greater knowledge output tend to generate a higher number of knowledge and technology startups. This suggests university spillovers are geographically bounded. The importance of this

[51] Audretsch et al.. 2006, p.78

geographic proximity depends on two factors: the particular type of university output and spillover mechanism.

Acs and Armington (2006)

Acs and Armington (2006) find a positive relationship that as firm formation rates increase employment growth increases. This graphing has similarities to Audretsch et al. (2001) and their graphing of the growth in entrepreneurship rates from 1974-1986 versus the growth in the unemployment rate from 1986-1998.

Other things being equal, employment in an area tends to keep pace with the growth of population in that area. Acs and Armington (2006) compare the five-year growth rates of employment and population levels of the 394 LMAs for 1991-1996. They divide the absolute growth levels over the five-years by the 1991 measure to find the growth rates. They then subtract the population growth rate from the employment growth rate to find a new measure, which represents the rate at which employment increased in excess of the overall growth rate of the population. They found considerable variation in the regional growth rates during the period. Employment change ranged from a low of –5.9% to a high of 47.1%. The highest excess of employment over population was 35.2%. Fifty of the 394 LMA's, or 12.7%, had lower growth in employment than in population for the period.

The Entrepreneurship - Unemployment Relationship - Overview

A variation of the central questions being reviewed could be: Is there a correlation between regional unemployment and entrepreneurship rates? This relationship has two sides: (1) Is entrepreneurship a function of unemployment rates; and/or, (2) Is unemployment a function of entrepreneurship rates? These variations of the central questions have been studied in greater detail and literature addressing these variant questions is reviewed theoretically and empirically. The literature on Question 1 is reviewed and discussed to assist in providing a context for an

expected average of entrepreneurship within a region. The literature on Question 2 is reviewed and discussed as it relates more directly to the secondary question of the thesis, 'rewards' for higher levels of entrepreneurship.

Entrepreneurship as Function of Unemployment – Theoretical Basis

Most analyses of the effects of unemployment on entrepreneurship rates is based upon the work of Knight (1921). Within his analytical framework, individuals may move between three states: unemployment, self-employment and employee (paid employment). Georgellis and Wall (2000) note:

> …following Knight (1921), the decision to become an entrepreneur has usually been modeled as an expected-utility-maximizing choice between entrepreneurship and paid-employment. Taking account of financial and non-financial returns on offer, an individual chooses to be an entrepreneur when the expected utility of doing so dominates that of paid employment.

Storey's (1991) review of various entrepreneurship studies on the unemployment-new firm relationship documents their basis on Knight's theory and that the individual would switch from employee to employer depending on the relative expected returns in these two forms of activity. Knight also introduces the concept of uncertainty within the decision to move into self-employment from either unemployment or paid employment (Parker 1996).

Knight's work has provided the basis of two theories on the effects of unemployment on self-employment. These are the 'recession push' and 'prosperity pull' hypotheses, sometime referred to as the 'push' or 'refugee effect' (Audretsch et al., 2001) and 'pull' effects. Parker (1996) argues: "The common ground shared by the 'push' and 'pull' theories is that they both emphasize the returns from self-employment relative to paid employment as being of central importance in explaining the proportion of the workforce self-employed."

The 'pull' hypothesis argues that new firm formation takes place when an individual perceives an opportunity to enter a market to make at least a satisfactory level of profit. Ceteris paribus,

this is more likely to happen when demand is high and when the individual is credit-worthy or has access to personal savings. In such a situation individuals are ‘pulled’ or attracted into forming their own businesses and are more likely to have access to the assets necessary to start the business. (Storey 1991)

The converse ‘push’ hypothesis suggests that depressed market conditions mean individuals experiencing or facing the prospect of unemployment are more likely to establish new firms. In the Knight framework, even though the expected income from self-employment is low, it is higher than the expected income from unemployment or from searching for employment as an employee. (Storey 1991)

Storey (1991) makes note of a third hypothesis suggested by Hamilton (1989). The third hypothesis suggests that the relationship between unemployment and business formation may be non-linear. He argues that at low levels of unemployment, increases in unemployment will lead to increases in business formations. However, once a 'critical' level of unemployment is reached, increases in unemployment lead to reductions in new firm formation. Hamilton provides two arguments for a critical or break point. The first is: at low levels of unemployment those who become unemployed recognize that market opportunities exist and are therefore 'pulled' into forming their own firm. But as unemployment continues to rise these business opportunities diminish and so new firm formation rates drop. Hamilton's second argument for a break point is that an economy may have a fixed supply of new firm founders, which once exhausted, will lead to a drop in formation rates.

Georgellis and Wall (2000) write: "Modern extensions of the model include Blau (1987) who considered the general equilibrium aspects, Evan & Jovanovic (1989) who introduces credit constraints, and Parker (1996) who developed an inter-temporal model with uncertainty."[52]

Both Storey (1991) and Audretsch et al. (2001) also reference the work of Oxenfeldt (1943), who articulated that individuals faced with unemployment and little prospect of gaining employment, would be more likely to work for themselves than an otherwise similar individual who is employed.

Entrepreneurship as Function of Unemployment – Prior Analysis

Audretsch, Carree and Thurik (2001) classify the relationship between entrepreneurship and unemployment as being 'shrouded with ambiguity.' Their literature review also finds no agreement on whether higher unemployment levels leads to higher levels of self-employment. Some studies have found that unemployment is associated with greater entrepreneurial activities, but others have come to the opposite conclusion, that entrepreneurship and unemployment are inversely related. In addition, there is no agreement on whether entrepreneurial activity leads to lower unemployment levels or not.

> The relationship between unemployment and entrepreneurship has been shrouded with ambiguity. On the one hand, the simple theory of income choice, which has been the basis for numerous studies focusing on the decision confronted by individuals to start a firm and become an entrepreneur (Blau, 1987; Evans and Leighton, 1990; Evans and Jovanovic, 1989; and Blanchflower and Meyer, 1994) suggests that increased unemployment will lead to an increase in startup activity on the grounds that the opportunity cost of not starting a firm has decreased. On the other hand, the unemployed tend to possess lower endowments of human capital and entrepreneurial talent required to start and sustain a new firm (Lucas, 1978; Jovanovic, 1982), suggesting that high unemployment is associated with a low degree of entrepreneurial activities. A low rate of entrepreneurship may also be a consequence of the low economic growth levels, which also reflect higher levels of unemployment (Audretsch, 1995). Entrepreneurial opportunities are not just the result of the push effect of (the threat of) unemployment but also of the pull effect of produced by a thriving economy as well as by entrepreneurial activities in the past.[53]

[52] Georgellis and Wall, 2000, p.388
[53] Audretsch, Carree and Thurik, 2001, p. 2

Audretsch, Carree and Thurik (2001) test two hypotheses using a panel data set from 23 OECD countries between 1974-1998. The first hypothesis is that an increase in entrepreneurial activity leads to a decrease in subsequent unemployment. The second hypothesis is that the propensity to start a new firm is positively related to increases in unemployment. Their findings are discussed later in this chapter.

Georgellis and Wall (2000) find a great deal of variation in levels of entrepreneurship, measured as a rate of self-employment, across the regions of Great Britain from 1983-1995. Average regional self-employment rates ranged from 25% above to 25% below the national average. They develop a theoretical model of regional self-employment, and estimate the roles of labour market conditions, labour force characteristics, industry composition, and region-specific factors. They focus their research on regional differences not any time series effects. Georgellis and Wall (2000) introduce a simple individual-level random utility model to regional analysis.

They assume that each member of the labour force has a choice of pursuing paid-employment or becoming an entrepreneur. They define a *mean person* as that member of a labour force who possesses the mix of characteristics and skills expected of a randomly selected person. The utility a mean person would attain if he pursued self-employment in region *i* is U_i^{se} and from paid-employment in region *i* as U_i^{pe}. The paid-employment and self-employment utilities differ across regions because the regions differ in their suitability (including profitability) for entrepreneurship relative to paid employment. These differences arise from regional differences in industrial composition, wages for paid-employment and risks associated with paid employment (possible unemployment). Regions also differ in their skills and preferences towards self-employment. They attempt to capture the regional preference component by using the labour force's educational and age composition.

Acs, Audretsch and Evans (1994) look at the varying self-employment rates across countries over time. After studying the problem they conclude that the reason for the diversity is the stage of economic development, claiming "the tendency for the self-employment rate to decline with economic development has long been recognized"[54]. This claim is in contrast with their own findings, which showed 15 of the 23 OECD countries they examined had increases in the self-employment rate during the 1970s or 1980s. Acs et al. conclude: "It is likely, however, that these factors are temporary and that self-employment will continue it downwards trend as per-capita wealth increases in the developed and developing world."[55] The authors then move into estimating the statistical relationship between self-employment and economic development. Acs et al. (1994) dismiss Blau's (1987) findings which shows in the early 1970s the proportion of the non-agricultural labor force self-employed in the United States ceased its downward trend and has been rising ever since.

Acs et al. (1994) explored six possible reasons for intracountry and intercountry variations. They were: stage of economic development; the bias of technological change; changes in industry composition; demographic characteristics, in particular female labour-force participation; unemployment; and, cultural factors.

Blau (1987) observes since the early 1970s the proportion of the nonagricultural labor force self-employed in the United States ceased its downward trend and has been rising ever since. Blau provides an analysis of the causes of this change through a general equilibrium model of self-employment and wage employment utilizing aggregate U.S. time series data.

Within Canada, Lin et al. (1999) looked at the self-employment sector of Canada at the provincial level from January 1990 to February 1998. They looked at three questions with the

[54] Acs, Audretsch and Evans, 1994, p.i (abstract)
[55] Acs, Audretsch and Evans, 1994, p.26

first being – do labour market hardships 'push' people into self-employment at the aggregate level? They developed an equation where the dependent variable, the monthly provincial self-employment, is regressed against business cycle indicators, either the monthly provincial unemployment rate or the monthly provincial full-time paid employment rate and the monthly provincial labour force participation rate.

Entrepreneurship as Function of Unemployment – Empirical Findings

Audretsch, Carree and Thurik's (2001) evidence suggests that the relationship between unemployment and entrepreneurship is, in fact, both negative and positive. They conclude increases in unemployment over time clearly have a positive impact on subsequent entrepreneurship. At the same time, increases in entrepreneurship result in a reduction of subsequent unemployment.

Regarding labour market variables, Georgellis and Wall (2000) find that the relationship between relative self-employment and relative unemployment is hill shaped with a peak at a relative unemployment rate of 1.06 implying both a 'push' and 'pull' effect. They find a negative relationship between self-employment and the real wage variable consistent with the notion that the wage in paid-employment represents the opportunity cost of self-employment. Although noting the inflexibility in age ranges, they find that age does capture some of the variation in regions although only the 44-retirement age group is statistically significant. Education also provides some explanation although the coefficient for higher education is negative, not what was expected. The coefficients of the industry composition variables were estimated relative to that of the excluded industry; agriculture, fisheries, and forestry whose coefficient was set to zero. Only the industries of public administration, metals/minerals/chemicals and distribution/hotels/repairs were both positive and significant thus a higher employment share would have a larger effect than a higher share from agriculture.

Although cautionary in interpreting the coefficients for each of the industry groups in explaining regional differences in self-employment rates, after additional econometric testing, Georgellis and Wall conclude that industrial composition is statistically important.

Within their econometric modeling and testing they compare region-specific intercepts to a common intercept to test for regional differences in culture, history, geography and sociology not easily captured by actual variables. This is called region-specific effects and they find it explains a relatively large portion of the regional variation in entrepreneurship. They call the portion attributable to the region-specific effect the 'entrepreneurial human capital' of a region's average person. In additional testing they also conclude that cross-region correlation should be accounted for in estimating regional self-employment relationships.

Acs et al. (1994) evaluate the stage of economic development by performing an ordinary least squares regression between the self-employment rate and per capita gross national product (GNP) for 22 OECD countries in 1986. They find that a 10% increase in per capita GNP is associated with a 4.2% decrease in the self-employment rate. Using the panel data for the OECD countries from 1966-1987, they estimate that a 10% increase in per capita GNP is associated with a 1.5% decrease in the self-employment rate. These findings support the theory that increases in economic development lead to a decrease in the number of business owners. They also estimated a positive correlation between the percent of manufacturing employment in the high technology industries and the self-employment rate. For the OECD panel (developed countries), Acs et al. (1994) find a statistically significant negative correlation between the self-employment rate and the manufacturing ratio and a statistically significant positive correlation between the self-employment rate and the service ratio, holding per capita GNP constant. They find the opposite result for developing countries. The authors find that the

increase in the female labour-force participation rate has been associated with a decline in the self-employment rate for the OECD countries. With regard to unemployment, the authors recognize unemployment can either lower or raise barriers to self-employment. They find, while holding per capita GDP constant, a 10% increase in the unemployment rate is associated with a 1.5% increase in the self-employment rate.

Blau (1987) introduces a general equilibrium model of self-employment. Variables include relative prices, technology and tax structure. With the model, Blau utilizes fractions of the labor force in various employment categories and median earnings of workers by employment category. Blau's empirical analysis reveals that the most important causes of rising self-employment in the decade prior to 1987 are changes in industrial structure and technology.

For Canada in the 1990s, Lin et al. (1999) find for the men and women combined regression an empirically small but statistically significant negative relationship between self-employment and unemployment. On average a 1% increase in the unemployment rate is found to be associated with 0.05% decrease in the overall self-employment level and a 0.06% decrease in the self-employment rate after controlling for time, labour force participation and provincial variations.

Storey (1991) finds "The broad consensus is that time series analyses point to unemployment being, ceteris paribus, positively associated with indices of new-firm formation, whereas cross sectional, or pooled cross sectional studies appear to indicate the reverse. Attempts to reconcile these differences have not been wholly successful."[56]

[56] Storey, 1991, p.169

Unemployment as Function of Entrepreneurship – Prior Analysis

As pointed out by Van Stel and Story (2004), prior studies of the relationship between 'entrepreneurship' and 'economic success' adopt different approaches yielding different results. Three positive studies they point to included: Reynolds et al. (2000) which looks at the relationship between 'Total Entrepreneurship Activity' and percent growth of GDP for 21 countries, finding the relationship highly significant; Johnson and Parker (1996) which find 'robust evidence that growth in births (and reduction in deaths) significantly lowered unemployment'; and, finally, Ashcroft and Love (1996) who find new-firm formation to be strongly associated with net employment change in Great Britain over 1981-1989. The varying results begin within Fritsch (1997) as he finds a positive relationship between entries and employment changes for manufacturing in the long run but a negative relationship for the service sector and all other sectors.

Audretsch, Carree and Thurik (2001) test two hypotheses using a panel data set from 23 OECD countries between 1974-1998. The first hypothesis is that an increase in entrepreneurial activity leads to a decrease in subsequent unemployment. The second hypothesis is that the propensity to start a new firm is positively related to increases in unemployment. Their equations are tested over three time spans, four, eight and 12 years.

Carree et al. (2002) study economic development and business ownership of 23 OECD countries from 1976-1996 utilizing an error-correction model to determine the 'equilibrium' rate of business ownership as a function of GDP per capita. They hypothesize an 'equilibrium' relationship between the rate of business ownership and per capita income that is U-shaped. The U-shaped pattern has the property that there is a level of economic development with a 'minimum' business ownership rate. They then use the model to investigate whether deviations between the actual and the equilibrium rate of business ownership will diminish the growth

potential of an economy in the medium term. They see both too few and too many business owners as detrimental to the optimum output level. Too few business owners is likely to diminish competition with "detrimental effects for static efficiency and competitiveness of the national economy"[57], while too many will cause the average scale of operations to remain below optimum.

Folster (2000), attempts to disentangle unemployment's role on self-employment and self-employment's role on employment by utilizing two simultaneous structural equations. The first equation captures an individual's choice of self-employment, while the second equation models the demand for labour as a function of the wage rate, business conditions and the share of self-employed. Folster applies his model to Swedish panel data of regional employment and self-employment for 24 Swedish counties from 1976-1995.

Van Stel and Storey (2004) test the assumption of a strong positive relationship between increased startups and subsequent employment growth by analyzing data for new firm start-ups and employment changes within Great Britain from 1980-1998. Their model incorporates adjustments for the labour market, sectoral comparisons, lag structures and policy and region-specific effects.

Unemployment as Function of Entrepreneurship – Empirical Findings

Audretsch, Carree and Thurik (2001) find that those countries exhibiting a greater increase in entrepreneurship rates between 1974-1986 also tended to exhibit greater decreases in unemployment rates between 1986-1998, suggesting a negative relationship between entrepreneurial activity and subsequent unemployment.

[57] Carree et al., 2002, p.276

Carree et al. (2002) find evidence for a long-term equilibrium relation between economic development and business ownership. However, they cannot distinguish whether the relationship is U-shaped or L-shaped. They find evidence of an error correction mechanism between the actual rate of business ownership and the equilibrium rate, as lagged unemployment appears to be a significant push factor of business ownership. They also find that deviations from the equilibrium influence economic growth, as such, economies can have too many or too few entrepreneurs. They estimate a five-percentage point deviation from the equilibrium implies a growth loss of 3% over four years.

Folster (2000) finds significant support for the notion that increased self-employment has a positive effect on employment. His short-term self-employment coefficient findings estimate that when self-employment increases by an additional 1% of the workforce, total employment increases by .5% of the workforce. The long-run effect of this same self-employment coefficient would be 1.3. This would mean that when self-employment increases by an additional one percent of the workforce, total employment increases by 1.3% of the workforce.

Audretsch and Fritsch (2002), in reviewing the 74 (former) West German planning regions from 1983-98, find the start-up rates in the 1980s were unrelated to employment changes in the 1980s. They did find those regions with higher start-up rates in the 1990s had higher employment growth in the 1990s and finally those regions, which had higher start-up rates in the 1980s had high employment growth in the 1990s.

In contrast to the national policy of Great Britain to assist in new firm formation rates and job growth, Van Stel and Storey (2004) find no evidence that changes in new firm formation rates in the 1980-83 period explained employment changes in 1984-1991. They do show that new firm formation in the 1987-1990 period was significantly positively associated with employment

growth in the 1991-1998 period. In Scotland however, increases in new firm formation led to falling employment. They conclude that it is clear that increases in birth rates can lead to additional job creation in the short and medium term.

Conclusions

This chapter provides the theoretical basis for the thesis and provides the linkages between the three economic theories. Schumpeter (1934) provides the basis for the inclusion of the entrepreneur within economic theory. Schumpeter (1934) makes the entrepreneur central to economic development. Schumpeter's work is universally recognized for acknowledging that the entrepreneur has a place within economic development, innovation, job creation and economic growth. He provides the theoretical basis for studying the entrepreneur and entrepreneurship. To Schumpeter, economic development is based upon the entrepreneur and innovation.

Although some economists predicted the decline of entrepreneurship rates as a country developed, this did not hold true. As the 20th century progressed, the neo-classical growth model also did not hold true without revision. In revising the growth model, human capital and innovation were introduced to become endogenous to the growth model. This revised model has been further refined to include the entrepreneur and entrepreneurship. The model revisions are based upon the introduction of the KST of Entrepreneurship within the NGT.

Birch's (1987) work provides the linkages between Schumpeter's theory of entrepreneurship's role in innovation and economic development with the empirical evidence of small business, innovation, job creation and economic growth within a New Growth Theory which includes the entrepreneur. Birch's work acknowledged that small growing firms produce the majority of new jobs.

The limited work on NGT suggests that increased entrepreneurship leads to increased job creation numbers and economic growth. With limited information on studies tied to the NGT and

the central questions of this paper, how else has this question been proposed and researched? The answer lies within the bi-directional relationship studies on entrepreneurship rates and unemployment rates. These studies were reviewed because they provided insight into both of the central questions of this paper and assist in developing a hypothesis. In reviewing an expected participation percentage of entrepreneurs within a region should there be an expectation of different levels of entrepreneurship percentages due to prior unemployment rates? In reviewing job creation levels does previous self-employment participation rates have an effect? Does the study group appear to be effected by either the 'push' or 'pull' effects? The previous works in these areas of study are inconclusive but Schmitz's endogenous growth theory would predict areas with higher entrepreneurship would have higher job creation rates and possibly lower unemployment rates.

CHAPTER 3
METHODOLOGY, MODEL DESIGNS, VARIABLES AND LIMITATIONS

Having discussed what entrepreneurship and economic development are and how to describe them in Chapter 2, this chapter is devoted to how to measure entrepreneurship and economic development and the adequacy of the dataset to test for a correlation between entrepreneurship and economic development.

The paper and theories cited in Chapter 2 have used various models and variable choices due to either model requirements or data availability. This Chapter discusses key components of the various models and their variables to assist in understanding the variable choices used and the assumptions made in designing the models for this paper. Following that discussion, the proposed models and variable choices will be outlined.

Theories, Models, Variables and Datasets

For Schumpeter (1934), Baumol (1993) and Birch (1987), there are common repetitive firms and innovative firms. As discussed earlier, Birch (1987) contends that, innovation creates growth opportunities for firms. Firms which capture these opportunities expand, thus increasing employment.

If the innovative entrepreneurs are the ones who create the jobs and develop the local economy how, can they be measured at the regional level? Storey (1991) contends the empirical work on employers and employee relationships are based upon new firm formations, which are usually measured in three forms. These forms are: new company incorporations; businesses newly registered for tax programs (i.e. Canada GST, U.K. VAT); and, changes in the proportions (or numbers) of self-employed workers. Storey (1991) provides arguments showing how each of

the measures is neither comprehensive nor unbiased, yet adopts the self-employment measure as the best for analyzing entrepreneurship within a region. Van Stel and Story (2004) utilize firm births while Robson (1998) reviewed the self-employment rate of United Kingdom males in his study.

As discussed earlier, both Audretsch et al (2006) and Acs and Armington (2006) use new firm formation rates as proxy for entrepreneurship. Acs and Armington further clarify that they use gross firm formation rates not the net change in number of firms or establishments in an area. Audretsch et al. (2006), in discussing the choice of an empirical measure for entrepreneurship, state, "measures of self-employment reflect change that is occurring for individuals starting a business. Because very little of this change is projected onto (the larger industry, national or) global economy, self-employment as a measure of entrepreneurial activity has been criticized."[58]

The Prairie provinces provide another conundrum in researching entrepreneurship and considering self-employment levels as a proxy. Most occupations within primary sectors and resources are considered self-employed (i.e. farming, forestry) and for this reason self-employment levels have historically been higher in Prairie Canada as compared to national averages. Georgellis and Wall (2000) remove the agricultural sector from their study and studied the non-agriculture self-employed.

The availability of data on business ownership and firm formation at the regional level provides another barrier. Statistic Canada does publish information on business establishments within *Canadian Business Patterns* but this publication only dates back to December 1997. Older versions of Business Patterns date back to 1989, but have various classification and geographic

[58] Audretsch et al., 2006, p.8

changes making it difficult to provide uniform data over a longer time period. Certain data sources provide information for the census years only not annually.

Given the three choices of how to measure business formations as a proxy for entrepreneurship, the limitations of regional data, and a desire to capture the innovative firms that give rise to job creation while addressing the influences of the primary producers in the geographic region of study, estimates provided by the Labour Force Survey on self-employed individuals, not employed in agriculture, with employees (SEWE, special Statistics Canada run) will be used as the proxy for entrepreneurship in this study. This variable provides a comparable annual regional measure over a twenty-year time frame. Although the agricultural sector has been removed directly from the study, it is assumed that the innovative firms related to the sector would not have been. The assumption is any farm based operation which manufactures new products would be captured within the manufacturing sector not the agriculture sector when classified within the Labour Force Survey.

The utilization of SEWE appears comparable to Audretsch's et al. (2002) and Carree's et al. (2001) measure of business ownership rates to estimate entrepreneurial activity. Their measure is defined as the number of business owners (in all sectors excluding agriculture) divided by the total labour force. The three qualifications cited for the business ownership rate measure are similar for the SEWE measure. First, it lumps together all types of heterogeneous businesses treating them all the same, regardless of size, industry or sector. Second, it is not weighted for magnitude or impact. Third, the variable measures the stock of businesses not the start-up of new ones.

Regional Entrepreneurship Rates – Overview

As discussed, Birch (1987) devises a growth index measure for both firms and regions to eliminate the biases introduced by changes in levels for small and large communities. Like Birch,

this study does not want to categorize areas simply by percentage growth (which favours small areas) or absolute growth (which favours large ones). The index combines the two by cross multiplying them to come up with a size independent measure of employment growth.

Another form for normalizing self-employment rate changes over geographic areas has been to use either the Business Stock approach or the Labour Market (LM) approach. Within these approaches the denominator is either the stock of existing businesses or the size of the regional workforce respectively. These two approaches control for the different absolute sizes of the regions while representing the most likely source of startups. Garofoli (1994) argues for the utilization of the LM approach. Van Stel and Storey (2004) discuss these two approaches and then utilize the LM approach, although earlier drafts of their findings used both approaches.

The basic analysis of the SEWE variable as a participation percentage, will include changes within regions over time, including absolute changes, percentage absolute change, changes as percentage of labour force population over 15 years of age, and a variation of the Birch growth index – multiplying absolute change with percentage change.

Acs and Armington (2006)

Components of the Acs and Armington (2006) analysis will be used to analyze the relationship between entrepreneurial activity and economic growth, as defined by employment. Acs and Armington (2006) provide forms of analysis, which can be repeated with the SEWE and employment datasets. Their analysis includes graphing the relationship between firm formation rates and employment growth in labor markets. Acs and Armington (2006) find that as firm formation rates increase employment growth increases. This graphing has similarities to Audretsch et al (2001) and their graphing of the growth in entrepreneurship rates from 1974-1986 versus the growth in the unemployment rate from 1986-1998.

As cited by Acs and Armington, employment in an area tends to keep pace with the growth of population in that area, other things being equal, so it is useful to examine both the rate of increase in employment and how it differs from the rate of increase in population. Acs and Armington (2006) compare the five-year growth rates of employment and population levels of the 394 LMAs for 1991-1996. They divide the absolute growth levels over the five years by the 1991 measure to find the growth rates. They then subtract the population growth rate from the employment growth rate to find a new measure, which represents the rate at which employment increased in excess of the overall growth rate of the population. As discussed earlier, they found considerable variation in the regional growth rates during the period. Employment change ranged from a low of –5.9% to a high of 47.1%. The highest excess of employment over population was 35.2%. Fifty of the 394 LMA's, or 12.7%, had lower growth in employment than in population for the period. A similar analysis will be provided for the 20 enterprise regions (ERs) of Prairie Canada from 1987-2006.

The Audretsch, Carree and Thurik (2001) Models

Audretsch, Carree and Thurik (2001) adopt the arguments made by Storey (1991) to use self-employed businesses as the proxy measure for entrepreneurship. Audretsch et al (2001) provide the simplest model for evaluating the relationship of unemployment and self-employment both as dependent and independent variables. Their models are as follows:

To test the hypothesis that the propensity to start a new firm is positively related to increases in unemployment, they estimate:

$$E_{it} - E_{i,t-L} = \kappa + \lambda(U_{i,t-L} - U_{i,t-2L}) + \mu(E_{i,t-L} - E_{i,t-2L}) + \varepsilon_{2it} \qquad (3.1)$$

Where E is the self-employment rate, U is the standardized unemployment rate of the country, *i* is a country index, *L* is the time span in years. The expected sign of the co-efficient λ is positive and the expected sign of μ is also positive.

To test the hypothesis that an increase in entrepreneurial activity leads to a decrease in subsequent unemployment, they estimate:

$$U_{it} - U_{i,t-L} = \alpha + \beta(E_{i,t-L} - E_{i,t-2L}) + \gamma(U_{i,t-L} - U_{i,t-2L}) + \varepsilon_{1it} \qquad (3.2)$$

The expected sign of the co-efficient β is negative, as is the expected sign of γ.

In both equations (3.1) and (3.2) the lagged endogenous variable is used on the right hand side to "correct" for reverse causality. Equations (3.1) and (3.2) are estimated using weighted least squares. The weighting variable is the number self-employed. Three different lag structures are used four years, eight years, and 12 years: thus, *L* is 4, 8, 12. Arguments are given that a longer lag structure (eight years or greater) is more compelling because the employment impact of entrepreneurship is not instantaneous but requires the firm to grow over a number of years.

The model to be used will remain close to the same, as described below:

$$SEWE_{it} - SEWE_{i,t-L} = \kappa + \lambda(U_{i,t-L} - U_{i,t-2L}) + \mu(SEWE_{i,t-L} - SEWE_{i,t-2L}) + \varepsilon_{2it} \quad (3.3)$$

Where SEWE is self-employment (with employees) rate for each economic region *i*, as a percentage of the total labour force over 15 years of age, *U* is the standardized unemployment rate of the economic region, *i* is an economic region index, *L* is the time span in years. The lags to be used are one, two, four and eight years, thus *L* is equal to 1, 2, 4, and 8. The expected signs of the co-efficients λ and μ are positive. The weighting for the regressions will be done by the cross-section option available for E-Views 5.1.

To test the hypothesis that an increase in entrepreneurial activity leads to a decrease in subsequent unemployment, the following model will be estimated:

$$U_{it} - U_{i,t-L} = \alpha + \beta(SEWE_{i,t-L} - SEWE_{i,t-2L}) + \gamma(U_{i,t-L} - U_{i,t-2L}) + \varepsilon_{1it} \quad (3.4)$$

The expected sign of the co-efficients β and γ is negative. Again the lags to be used are one, two, four and eight years, thus L is equal to 1, 2, 4, and 8 and the weighting for the regressions will be done by the cross-section option available for E-Views 5.1.

Georgellis and Wall (2000) Model of Self-Employment

Within the introductory component of Georgellis and Wall (2000), they depict the relative rates of self-employment for the various regions versus the annual average of Great Britain for the period of 1978-1995 as a 3D chart. Their finding is that the regional rates of self-employment relative to the national average differed widely across regions and fluctuated significantly over the period. Chapter 5 will be dedicated to the utilization of relative measures for entrepreneurship and job creation including an equivalent depiction for the 20 ERs of Prairie Canada for 1987-2006.

Georgellis and Wall (2000) provide the basis of what will become the model used for further testing of SEWE as a dependent variable. Their model was based upon four areas of study: labour market conditions; labour force characteristics; industry composition; and, region-specific factors.

Their model is:

$$S_{it+1} = \alpha_i + \beta_1\omega_{it} + \beta_2\omega_{it}^2 + \gamma_1 u_{it} + \gamma_2 u_{it}^2 + \delta' \mathrm{X}_{it} + \theta' Z_{it} + \varepsilon_{it} \quad (3.5)$$

Where S is the rate of self-employment in a region

α_i is the region-specific intercept

ω_i is the average real wage for paid employment in region *i*

u_i is the unemployment rate in *i*

X_i is a vector of variables controlling for the industrial composition in *i*

Z_i is a vector controlling for the characteristics of the labour force in *i*

Georgellis and Wall (2000) use a quadratic to specify each of the two labour market variables because each has two opposing effects on the self-employment rate. On one hand, a high unemployment rate may 'push' people into self-employment while a buoyant regional economy may 'pull' people into self-employment. By assuming a quadratic form they allow for the possibility of both effects dominating in different ranges. They use the quadratic form for wages because it measures the pecuniary benefits of paid-employment (the opportunity cost of being an entrepreneur), but may also act as a measure of the levels of income of the customers of the self-employed, and therefore act as a proxy for regional aggregate demand.

Georgellis and Wall (2000) assume that the current self-employment rate depends on the values of the right-hand-side (RHS) variables from the previous period. Another assumption is that region-specific effects are fixed over the examination period.

Georgellis and Wall (2000) control for contemporaneous trends in the RHS variables by measuring the value of each variable relative to the average of the regions within a given year. Their claim is; by using relative measures for all the variables means that all level effects are removed from the data, allowing them to focus purely on regional differences. It also eliminates the need for year dummies.

Georgellis and Wall (2000) use the shares of the region's employees who are employed in each of the ten Standard Industrial Classifications to represent a region's suitability for entrepreneurs, vector X. To prevent perfect collinearity of certain variables they excluded agriculture, forestry and fishing.

Georgellis and Wall (2000) use six variables to represent the characteristics of a region's labour force, vector Z. These variables are; share of the region's population aged 16-44, the share aged 45 to retirement (age 60 for women, 65 for men), the share older than retirement age, share with an A-level or higher qualification (education measurement), share with no qualification, and the female share of the labour force.

The model to be used will remain close to the same, as described below:

$$SEWE_{it+1} = \alpha_i + \beta_1 U_{it} + \beta_2 U_{it}^2 + \lambda PD_{it} + \delta PubE_{it} + \varepsilon_{it} \quad ; \qquad (3.6)$$

where SEWE is the relative rate of self-employment with employees in a region

α_i is the region-specific intercept;

U_i is the relative unemployment rate in economic region *i*;

PD_i is the relative population density in economic region *i*; and

$PubE_i$ is the relative share of labour force employed in education, health care, social services and public administration in economic region *i.*

The population density value is used to account and adjust for the differences in the industrial structure in urban and rural ER. The expected sign of the co-efficient λ is positive, as density increases the opportunities available to the general public are expected to increase. The economic opportunities are expected to increase because the local market size is increased. Larger markets provide an entrepreneur with a greater number of potential opportunities as the demand/need for products and services usually increase.

The expected sign of the co-efficient δ is indeterminant, as higher rates of public employment may be used may be viewed as making a region 'unentrepreneurial' while public servant incomes maybe viewed as a market place positive for entrepreneurs to establish a business.

Although Van Stel and Storey (2002) find that high growth in non-private sectors was partly associated with low start-up rates and vice versa, resulting in a downward bias on the start-up rate coefficient.

Van Stel and Storey (2004) Employment Model

This model is provided to assist in discussing other variables and concerns. Van Stel and Storey (2004) claim, with exception of Audretsch and Fritsch (2002), the relationship between new-firm startups and employment growth has previously been examined with either no time lag or only a short period lag. Their paper looks at both short-run and long-run relationships.

In the basic form the Van Stel and Storey (2004) model appears as below:

$$\Delta EMP_t = f(BIR_{t-1}, CON) \qquad (3.7)$$

Where Δ EMP_t = change in employment,

BIR_{t-1} = firm birth rate at start of period,

CON = vector of control variables

Van Stel and Storey (2004) claim to make advances in understanding the relationship on firm births and job creation because they normalize the births using the LM method, incorporate the differences in sectoral structures by incorporating Ashcroft et al. (1991) shift-share procedure, account for rural-urban differences in firm creations by using the population density control variable and standard region dummy variables. Other control variables include local wage rates to account for the nature of the local labour market and also use lagged employment growth. Van Stel and Storey (2004) utilize an Almon method to better understand the individual impacts of start-up rate variables from different periods.

Conclusions

The models and variables discussed provide a context for the development and execution of this study. The use of SEWE provides a comparable proxy for entrepreneurship to estimate entrepreneurial activity within the Audretsch et al. (2002) and Carree et al. (2001) models. The SEWE measure also addresses data concerns regarding having a regional measure within Prairie Canada over a long period of time while acknowledging the concern of including farmers and foresters as entrepreneurs in the model. The greater concern in using the SEWE measure is the geographic area of each region may not properly reflect the true commutershed of the region. The physical size of each region plays havoc on the utilization of population density as an econometric variable.

The SEWE participation percentages will be used as a replacement within several of Birch's calculations and analysis. This base data includes the absolute value of SEWE, the percentage of SEWE within the labour force over 15 years of age, and the absolute and percentage change in the SEWE number and percentage over the study time period. A variation on Birch's growth index measure will also be developed by multiplying the SEWE absolute change with percentage change. My analysis will also include a variation of the Acs and Armington (2006) work, which evaluates population growth rates with employment growth rates within designated geographic regions.

The two econometric models from Audretsch, Carree and Thurik (2001) are being adapted to evaluate the relationship of unemployment and entrepreneurship both as dependent and independent variables, while utilizing the SEWE variable as the proxy for entrepreneurship.

A very simplified version of the Georgellis and Wall (2000) self-employment model is being estimated as a further test of SEWE as a dependent variable. If the directions of the coefficients

are similar to the Georgellis and Wall (2000) findings, it may provide further justification for utilizing the SEWE variable in future entrepreneurship studies.

The Van Stel and Storey (2004) employment model is referenced for two reasons. First, it uses a labour based normalizing factor and secondly it acknowledges that most entrepreneurship studies do not incorporate the long-term effects of entrepreneurship on the regional economy. In Chapter 5 of this paper a model is developed to compare the long term effects of entrepreneurship on job creation in a regional economy.

CHAPTER 4
RESULTS

Regional Entrepreneurship, Unemployment and Employment Rates, and Birch Model Variations

The 20 economic regions (ERs) of Prairie Canada from 1987-2006 display varying levels of entrepreneurial activity as measured by the percentage of self-employed individuals, not employed in agriculture, with employees (SEWE) as a portion of the regional labour force aged 15 and older. The SEWE participation percentages or 'rates' not only vary over regions but within regions over the 20-year time frame.

Table 4.1 summarizes the changes in absolute SEWE levels for the 20 ERs in Prairie Canada from 1987-2006. Table 4.1 also includes an index measurement, similar to Birch's, derived by multiplying the absolute growth level and the percentage increase in SEWE. The percentage calculation is based upon the absolute change in levels for the 20-year period divided by the level in 1987.

Since the 'economic success' of a region for this component is measured by job growth and subsequently its unemployment rate, a column is added to several tables in this chapter to present the change in the unemployment rate for each ER from 1987–2006. The percentage change in unemployment represented in these tables is the absolute level change, meaning for ER South Central the unemployment rate (UE) dropped from 5% in 1987 to 2.5% in 2006; thus, the figure -2.5%. Interestingly, as shown by the UE Change column, the unemployment level for every ER declined over the 20-year period. Caution should be used when referencing the figures of the UE

percentage column as the measure is calculated from two discrete points and does not incorporate information on the business cycles of each region at the two points.

As an absolute level, the Growth column of Table 4.1 shows that 15 of the 20 ERs had positive increases in the number of SEWEs within their region over the time period examined. Every one of Alberta's eight ERs increased in SEWE levels over the 20 years. The lowest absolute level increase within Alberta was in the Lethbridge - Medicine Hat ER, which added 1,200 SEWE. In comparison, of the six ERs in Manitoba and Saskatchewan which increased SEWE levels only the ER of Southeastern Manitoba added more than 1,000 SEWE, adding 1,300.

Table 4.1 Absolute Levels of SEWE for the Prairie Economic Regions from 1987-2006[59]

Geography	SEWE					UE Rate
	1987	2006	Growth		Index	%Change
			(1,000s)	Percent		
Manitoba	25.1	22.5	-2.6	-10.36	-269.1	-3.1
4610 - Southeast	1.7	3.0	1.3	76.47	995.1	-1.6
4620 - South Central	1.1	1.4	0.3	27.27	81.9	-2.5
4630 - Southwest	3.1	2.2	-0.9	-29.03	-261.0	-2.0
4640 - North Central	1.3	0.9	-0.4	-30.77	-123.0	-4.9
4650 - Winnipeg	13.7	11.1	-2.6	-18.98	-492.9	-3.4
4660 - Interlake	2.3	2.5	0.2	8.70	17.4	-2.5
4670 & 680 - Parklands & North	1.8	1.5	-0.3	-16.67	-50.0	-3.5
Saskatchewan	22.1	23.8	1.7	7.69	130.9	-2.7
4710 - Regina - Moose Mountain	6.2	6.7	0.5	8.06	40.4	-2.1
4720 - Swift Current - Moose Jaw	2.3	2.8	0.5	21.74	108.8	-0.8
4730 - Saskatoon - Biggar	6.6	7.5	0.9	13.64	122.9	-4.1
4740 - Yorkton - Melville	2.3	1.6	-0.7	-30.43	-212.8	-1.6
4750 & 4760 - PA & Northern	4.7	5.2	0.5	10.64	53.2	-3.3
Alberta	58.9	103.1	44.2	75.04	33,201.9	-6.2
4810 - Lethbridge - Medicine Hat	5.5	6.7	1.2	21.82	262.1	-5.3
4820 - Camrose - Drumheller	3.5	7.3	3.8	108.57	4,129.8	-4.1
4830 - Calgary	17.7	36.7	19.0	107.34	20,415.9	-5.6
4840 - Banff - Jasper - RkyMtnH	1.6	4.1	2.5	156.25	3,910.2	-7.1
4850 - Red Deer	4.3	7.3	3.0	69.77	2,095.1	-5.5
4860 - Edmonton	19.6	29.0	9.4	47.96	4,512.7	-7.0
4870 - Athabasca - GrdPr - PcRvr	5.1	9.0	3.9	76.47	2,985.3	-6.4
4880 - Wood Buffalo - Cold Lake	1.6	3.0	1.4	87.50	1,226.2	-7.8

[59] Population, labour force, employment, full-time employment and part-time employment data are from the Statistics Canada Labour Force Survey, Labour Force Historical Review, 2006, Catalogue #71F0004X, Tables CD1T29AN and CD1t30AN.

Employment in Agriculture, Education Services, and Health Care and Social Services are from the Statistics Canada Labour Force Survey, Labour Force Historical Review, 2006, Catalogue #71F0004X, Tables CD1T31AN and CD1t33AN.

Self-employed with employees excluding agriculture data obtained from a special tabulation prepared by Statistics Canada from the Labour Force Survey.

When the ERs are given an index measurement (Table 4.1), similar to Birch's, five ERs had scores less than zero, six ERs had scores between zero and 200, two ERs had scores between 200 and 1,000 and 7 ERs had scores over 1,000.[60] Eleven of the 20 regions scored less than 200.

Southeastern Manitoba was the only ER from Manitoba and Saskatchewan scoring higher than 300 and the Lethbridge – Medicine Hat ER was the only region from Alberta not scoring above 300. The index shows how predominant the change in size of entrepreneurs within Alberta is over the time period as Manitoba had a loss of entrepreneur, Saskatchewan had a modest increase by gaining less than 90 entrepreneurs with employees per year while Alberta had an index measure of 33,201.9 a result of gaining more than 44,000 in 20 years or approximately 2,200 per year.

Table 4.2 summarizes the range and mean of the SEWE participation percentages for the 20 ERs from 1987-2006. The SEWE participation percentage is calculated as the annual absolute level of SEWE divided by the total labour force over 15 years of age for the corresponding year. The 400 individual measures of the percentage of SEWE in all ERs average to 5.01%.

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[60] Birch used his index to measure firm employment growth and employment growth in regions not entrepreneurship growth. Just as Birch cautioned the cutoff points in the index measure are arbitrary. The 200 value figure was cited because it appears attainable for even smaller regions (i.e. regions with only 1,000 SEWEs) by adding only 2 entrepreneurs per month over the twenty year period would result in an index score of 230.4. The value of an index measure of 1,000 was given as it demonstrates a tremendous measure of entrepreneurship for both large and small population regions. An ER region housing 1,000 SEWE in 1987 would have to double their number to reach a 1,000 index measure while a community of 1,600 would require approximately 1,300 additional SEWE and a community of 5,000 would require approximately 2,240 additional SEWE. A second caution in using the index measure as Birch's LMAs had a minimum population requirement of 250,000.

Table 4.2 Participation Percentage of SEWE for the Prairie ER from 1987-2006[61]

Geography	SEWE Participation Percentage		
	Min	Max	Mean
Manitoba	3.67	4.85	4.21
4610 - Southeast	4.07	7.43	5.32
4620 - South Central	3.41	7.84	5.23
4630 - Southwest	3.88	6.20	4.96
4640 - North Central	2.75	6.53	4.36
4650 - Winnipeg	3.01	4.52	3.68
4660 - Interlake	4.42	7.90	5.73
4670 & 680 - Parklands & North	3.02	5.65	4.21
Provincial Regions Average of the 140 ER measures of Manitoba (7 Regions x 20 years)			4.79
Saskatchewan	4.36	4.95	4.56
4710 - Regina - Moose Mountain	3.22	4.64	4.03
4720 - Swift Current - Moose Jaw	3.72	5.21	4.46
4730 - Saskatoon - Biggar	4.08	4.98	4.54
4740 - Yorkton - Melville	3.78	6.55	5.10
4750 & 4760 - PA & Northern	4.17	6.20	5.24
Provincial Regions Average of the 100 ER measures of SK (5 Regions x 20 years)			4.67
Alberta	4.48	6.06	5.17
4810 - Lethbridge - Medicine Hat	4.06	7.67	5.44
4820 - Camrose - Drumheller	4.14	8.03	5.87
4830 - Calgary	4.14	6.60	5.34
4840 - Banff - Jasper - RkyMtnH	4.66	9.03	6.94
4850 - Red Deer	3.56	7.24	5.33
4860 - Edmonton	4.11	5.34	4.66
4870 - Athabasca - GrdPr - PcRvr	3.91	7.76	5.73
4880 - Wood Buffalo - Cold Lake	3.21	5.70	4.06
Provincial Regions Average of the 160 ER measures of AB (8 Regions x 20 years)			5.42
Average of the 400 ER measures of Prairie Canada (20 Regions x 20 years)			5.01

As shown in Table 4.2, there is a provincial range and mean percentage calculated from the absolute values of SEWE and total labour force over 15 years of age for each year within the

[61] See Footnote # 59istics Canada special run dataset of self-employed with employees, outside of agriculture and Statistic Canada's Labour Force Data for Economic Regions 1987-2006

province. The provincial mean figure is calculated from the 20 provincial participation percentages. The mean provincial participation percentages, calculated by averaging the 20 provincial SEWE rates, were 4.21% in Manitoba, 4.56% in Saskatchewan and 5.17% in Alberta.

A secondary provincial average is also presented; the Provincial Regions Average, calculated by averaging the total number of regional measures within a province for the 20 years (i.e. Manitoba = 7 regions x 20 + 140 measures). The Provincial Regions Average of SEWE participation percentages for the 20 years in each province were 4.79% in Manitoba, 4.67% in Saskatchewan and 5.42% in Alberta. For individual ERs, percentage levels of SEWE in the labour force ranged from a low of 2.75% in North Central Manitoba in 1995 to a high of 9.03% in Banff – Jasper – Rocky Mountain House in 2001. As an annual average for each region the levels varied from ER Winnipeg at 3.68% to a high of 6.94% in Banff – Jasper – Rocky Mountain House. Over the 20 years the greatest variation in annual levels was found in South Central Manitoba[62], which has percentage levels ranging from a low of 3.81% to a high of 7.84% while lowest variance was in Saskatoon – Biggar, which ranged from a low of 4.08% to a high of 4.98%.

[62] These two percentages were in consecutive years, raising questions of the sampling techniques to arrive at the SEWE estimates in each region, or a dataset recording error.

Table 4.3 Total Employment (TE) Levels and Changes of the Prairie ERs from 1987-2006[63]

Geography	Total Employment					UE Rate
	1987	2006	Growth		Index	%Change
	(1,000s)	(1,000s)	(1,000s)	Percent		
Manitoba	505.2	587.0	81.8	16.19	13,258.0	-3.1
4610 - Southeast	35.9	50.9	15.0	41.78	6,273.7	-1.6
4620 - South Central	22.7	26.9	4.2	18.50	777.9	-2.5
4630 - Southwest	51.8	51.2	-0.6	-1.16	-6.9	-2.0
4640 - North Central	18.4	22.3	3.9	21.20	827.5	-4.9
4650 - Winnipeg	300.5	351.2	50.7	16.87	8,562.6	-3.4
4660 - Interlake	34.1	45.2	11.1	32.55	3,616.8	-2.5
4670 & 680 - Parklands & North	41.9	39.3	-2.6	-6.21	-161.2	-3.5
Saskatchewan	461.9	491.6	29.7	6.43	1,911.6	-2.7
4710 - Regina - Moose Mountain	136.8	147.4	10.6	7.75	822.2	-2.1
4720 - Swift Current - Moose Jaw	57.0	54.5	-2.5	-4.39	-109.5	-0.8
4730 - Saskatoon - Biggar	130.7	156.2	25.5	19.51	4,980.1	-4.1
4740 - Yorkton - Melville	45.7	40.6	-5.1	-11.16	-568.6	-1.6
4750 & 4760 - PA & Northern	91.6	92.9	1.3	1.42	18.5	-3.3
Alberta	1,187.7	1,870.7	683.0	57.51	393,159.5	-6.2
4810 - Lethbridge - Medicine Hat	92.4	137.5	45.1	48.81	22,035.1	-5.3
4820 - Camrose - Drumheller	78.7	107.1	28.4	36.09	10,258.8	-4.1
4830 - Calgary	389.8	705.0	315.2	80.86	255,131.8	-5.6
4840 - Banff - Jasper - RkyMtnH	31.0	49.6	18.6	60.00	11,171.2	-7.1
4850 - Red Deer	60.3	97.6	37.3	61.86	23,095.9	-5.5
4860 - Edmonton	417.2	582.3	165.1	39.57	65,400.9	-7.0
4870 - Athabasca - GrdPr - PcRvr	81.7	129.0	47.3	57.89	27,411.6	-6.4
4880 - Wood Buffalo - Cold Lake	36.6	62.6	26.0	71.04	18,488.4	-7.8

Table 4.3 summarizes the absolute growth and percentage growth of total employment based on the 1987 levels for the 20 ERs and the provincial totals. Although the unemployment rate dropped in all the ERs, Table 4.3 shows this was not necessarily due to substantial job creation as four ERs had their total employment levels drop over the same time period. These ERs included 4630 Southwestern Manitoba, the combined ERs of Manitoba's Interlake and Parklands and Northern regions, Swift Current - Moose Jaw, and Yorkton - Melville. The employment index measure provides context to the Birch (1987) employment index which covered a 10 year

[63] See Footnote # 59istics Canada special run dataset of self-employed with employees, outside of agriculture and Statistic Canada's Labour Force Data for Economic Regions 1987-2006

period from 1987-1997 for 239 regions of the United States. Within Birch's study the largest index measure was for Atlanta Georgia which had an index score of 192,131.9 for the 10years. Only 10 communities within Birch's study were above 100,000. His index scores drop quite quickly with only 59 Labour Market Areas (LMAs) scoring above 10,000 and the eleventh highest score being 72,706.2 for Seattle Washington. Although for a longer period of time the employment index measure shows how well Alberta's regions were doing for the study period. The index findings also show how regions in close proximity can have large variation in percentage growth and index measures as Saskatchewan only had 6.3% growth in total employment versus Alberta which had 57.51% growth. Birch (1987) cited how Atlanta had 40.5% increase in employment growth while neighboring Columbus, Georgia only had 6.3%. Birch's study had approximately 10% of regions in negative growth while 20% of Prairie regions had declining growth indexes. It is assumed that if Birch's study covered a similar time period he would have an increase in regions losing employment due the centralization of jobs and population.[64]

[64] The smallest region within Birch's (1987) study had a 1987 employment population of 58,900 for the region of Southwestern Texas

Table 4.4 SEWE & Total Employment Absolute Growth, Percentage Growth by ER 1987-2006[65]

Geography	SEWE Growth		Total Employment Growth	
	(1,000s)	Percent	(1,000s)	Percent
Manitoba	-2.60	-10.36	81.8	16.19
4610 - Southeast	1.30	76.47	15.0	41.78
4620 - South Central	0.30	27.27	4.2	18.50
4630 - Southwest	-0.90	-29.03	-0.6	-1.16
4640 - North Central	-0.40	-30.77	3.9	21.20
4650 - Winnipeg	-2.60	-18.98	50.7	16.87
4660 - Interlake	0.20	8.70	11.1	32.55
4670 & 680 - Parklands & North	-0.30	-16.67	-2.6	-6.21
Saskatchewan	1.70	7.69	29.7	6.43
4710 - Regina - Moose Mountain	0.50	8.06	10.6	7.75
4720 - Swift Current - Moose Jaw	0.50	21.74	-2.5	-4.39
4730 - Saskatoon - Biggar	0.90	13.64	25.5	19.51
4740 - Yorkton - Melville	-0.70	-30.43	-5.1	-11.16
4750 & 4760 - PA & Northern	0.50	10.64	1.3	1.42
Alberta	44.20	75.04	683.0	57.51
4810 - Lethbridge - Medicine Hat	1.20	21.82	45.1	48.81
4820 - Camrose - Drumheller	3.80	108.57	28.4	36.09
4830 - Calgary	19.00	107.34	315.2	80.86
4840 - Banff - Jasper - RkyMtnH	2.50	156.25	18.6	60.00
4850 - Red Deer	3.00	69.77	37.3	61.86
4860 - Edmonton	9.40	47.96	165.1	39.57
4870 - Athabasca - GrdPr - PcRvr	3.90	76.47	47.3	57.89
4880 - Wood Buffalo - Cold Lake	1.40	87.50	26.0	71.04

As Table 4.4 shows, three of the four economic regions, which had declines in total employment, also had declines in absolute levels of SEWE. These regions were Southwestern Manitoba, the combined ERs of Manitoba's Interlake and Parklands and Northern regions, and Yorkton – Melville. These declines are consistent with the assumption that entrepreneurship precedes employment growth thus a decline in entrepreneurs would lead to a decline in employment. The Swift Current – Moose Jaw region was the only region, which had a drop in

[65] See Footnote # 59istics Canada special run dataset of self-employed with employees, outside of agriculture and Statistic Canada's Labour Force Data for Economic Regions 1987-2006

total employment while the absolute value of SEWE increased. The Swift Current Moose Jaw region may have experienced a self-employment – unemployment 'push effect'. There were also two ERs, which had increases in total employment while having declining levels of SEWE. These ERs were Winnipeg and North Central Manitoba. The Winnipeg result may be explained by the assumption of an advanced ER having declining self-employment percentages as Winnipeg is the most populous ER of Manitoba, while the North Central ER may be explained by mineral exploration and expansion.

Table 4.5 is provided to assist in analyzing the relationship between absolute values of SEWE and full-time employment (FTE) figures. Table 4.5 shows the two ERs which lost FTE over the 20-year time frame also had an absolute loss in SEWE. These two regions were the combined regions of Parklands North plus Yorkton – Melville. Three ER of Manitoba had losses in SEWEs in the study period but did have FTE growth. These regions were Southwest, North Central and Winnipeg.

Table 4.5 SEWE & Full-Time Employment Absolute Growth, Percentage Growth by Economic Region 1987-2006[66]

Geography	SEWE Growth		Full Time Employment Growth	
	(1,000s)	Percent	(1,000s)	Percent
Manitoba	-2.6	-10.36	62.1	15.18
4610 - Southeast	1.3	76.47	13.2	46.81
4620 - South Central	0.3	27.27	3.9	22.67
4630 - Southwest	-0.9	-29.03	1.4	3.59
4640 - North Central	-0.4	-30.77	3.6	24.00
4650 - Winnipeg	-2.6	-18.98	33.8	13.64
4660 - Interlake	0.2	8.70	8.1	28.93
4670 & 680 - Parklands & North	-0.3	-16.67	-2.0	-5.90
Saskatchewan	1.7	7.69	37.1	10.22
4710 - Regina - Moose Mountain	0.5	8.06	12.4	11.30
4720 - Swift Current - Moose Jaw	0.5	21.74	0.8	1.87
4730 - Saskatoon - Biggar	0.9	13.64	23.4	22.67
4740 - Yorkton - Melville	-0.7	-30.43	-1.9	-5.62
4750 & 4760 - PA & Northern	0.5	10.64	2.5	3.40
Alberta	44.2	75.04	590.1	60.21
4810 - Lethbridge - Medicine Hat	1.2	21.82	37.6	50.20
4820 - Camrose - Drumheller	3.8	108.57	24.3	39.13
4830 - Calgary	19.0	107.34	276.5	85.16
4840 - Banff - Jasper - RkyMtnH	2.5	156.25	16.0	61.78
4850 - Red Deer	3.0	69.77	35.4	76.62
4860 - Edmonton	9.4	47.96	135.7	39.07
4870 - Athabasca - GrdPr - PcRvr	3.9	76.47	41.4	61.15
4880 - Wood Buffalo - Cold Lake	1.4	87.50	23.2	74.36

Variation of the Acs and Armington (2006)

Table 4.6 depicts the results calculated using the Prairie Canada data within the calculation originally performed by Acs and Armington to evaluate a regions economic growth in comparison to its population growth. Communities which have a positive measure for employment growth minus population growth are deemed to be performing well and the larger the difference the better their performance.

[66] See Footnote # 59istics Canada special run dataset of self-employed with employees, outside of agriculture and Statistic Canada's Labour Force Data for Economic Regions 1987-2006

For Acs and Armington (2006), employment tends to keep pace with the growth of population in the LMA, other things being equal. For the 394 LMAs they studied for the time period of 1991-96, the employment change ranged from a low -5.9% to a high of 47.1%. The highest excess of employment growth over population growth was 35.2%. Approximately 50 LMAs or 12.5% had lower growth in employment than population for the five-year period. They state, "There were many cases where employment change did not appear to be closely related to the population change."[67]

[67] Acs and Armington, 2006, p.119

Table 4.6 TE and Population Growth of the ERs of Prairie Canada from 1987-2006 [68] [69]

	TE (000s)			Population (,000s)			EmpGr-Popgr
	1987	Growth	% Growth	1987	Growth	% Growth	
Manitoba	505.2	81.8	16.19%	1098.0	79.7	7.26%	8.93%
4610 - Southeast	35.9	15.0	41.78%	75.4	21.8	28.85%	12.94%
4620 - South Central	22.7	4.2	18.50%	50.8	6.3	12.51%	6.00%
4630 - Southwest	51.8	-0.6	-1.16%	110.4	-4.5	-4.03%	2.88%
4640 - North Central	18.4	3.9	21.20%	46.9	2.1	4.49%	16.71%
4650 - Winnipeg	300.5	50.7	16.87%	613.5	37.9	6.17%	10.70%
4660 - Interlake	34.1	11.1	32.55%	72.0	16.3	22.69%	9.86%
4670 & 4680 - Parklands & North	41.9	-2.6	-6.21%	129.2	-0.2	-0.15%	-6.05%
						Average	7.74%
Saskatchewan	461.9	29.7	6.43%	1032.7	-47.4	-4.59%	11.02%
4710 - Regina - Moose Mountain	136.8	10.6	7.75%	282.1	-7.3	-2.59%	10.33%
4720 - Swift Current - Moose Jaw	57.0	-2.5	-4.39%	124.3	-23.6	-18.97%	14.59%
4730 - Saskatoon - Biggar	130.7	25.5	19.51%	281.1	11.5	4.09%	15.42%
4740 - Yorkton - Melville	45.7	-5.1	-11.16%	108.9	-24.5	-22.49%	11.33%
4750 & 4760 - PA & Northern	91.6	1.3	1.42%	236.4	-3.5	-1.49%	2.91%
						Average	10.91%
Alberta	1,187.7	683.0	57.51%	2435.3	940.4	38.62%	18.89%
4810 - Lethbridge - Medicine Hat	92.4	45.1	48.81%	211.4	50.2	23.76%	25.05%
4820 - Camrose - Drumheller	78.7	28.4	36.09%	172.6	22.1	12.82%	23.27%
4830 - Calgary	389.8	315.2	80.86%	741.7	451.9	60.93%	19.93%
4840 - Banff - Jasper - RkyMtnH	31.0	18.6	60.00%	66.6	18.4	27.64%	32.36%
4850 - Red Deer	60.3	37.3	61.86%	121.7	56.9	46.78%	15.08%
4860 - Edmonton	417.2	165.1	39.57%	836.1	258.2	30.88%	8.69%
4870 - Athabasca - GrdPr - PcRvr	81.7	47.3	57.89%	192.9	53.5	27.72%	30.18%
4880 - Wood Buffalo - Cold Lake	36.6	26.0	71.04%	92.5	29.2	31.61%	39.43%
						Average	24.25%

[68] Acs and Armington compare the five-year growth rates of employment and population levels of the 394 LMAs for 1991-1996. They divide the absolute growth levels over the five-years by the 1991 measure to find the growth rates. They then subtract the population growth rate from the employment growth rate to find a new measure, which represents the rate at which employment increased in excess of the overall growth rate of the population.

[69] See Footnote # 59istics Canada special run dataset of self-employed with employees, outside of agriculture and Statistic Canada's Labour Force Data for Economic Regions 1987-2006

For the Prairies over the time period, only one region, the combined ERs of Manitoba's Parkland and Northern regions had employment growth less than population growth (-6.05%). Concealed within this positive statement is the reality that five ERs within Manitoba and Saskatchewan obtained the positive calculations by losing a higher percentage of population than the percentage decreases in total employment. Four of Saskatchewan's five ERs had negative population growth over the 20-year study period.

The average regional employment growth in excess of population for the three province's as calculated by averaging the ER figures for each province was 7.74% in Manitoba, 10.91% in Saskatchewan and 24.25% in Alberta, further emphasizing the recent economic boom taking place in Prairie Canada, especially Alberta. The average provincial growth of employment over population calculated from absolute figures for each province is 8.93% for Manitoba, 11.02% for Saskatchewan and 18.89% for Alberta.

Of particular note for Alberta is not how much the population grew but how much more the total employment (TE) grew in percentages over the population growth. This is highlighted by Calgary whose percentage growth in population was 60.93%, which is easily surpassed by the 80.86% growth in TE over the same time period. The Edmonton ER had the lowest differential in growths for Alberta at 8.69%, yet this is above a substantial population growth of 30.88%. As a comparison, the highest population growth for a region outside of Alberta was Southeastern Manitoba at 28.85% a gain of 21,800 people over the 20-year period while Edmonton's population increased by 258,200 people or 30.88%.

The Audretsch, Carree and Thurik (2001) Models

In Audretsch, Carree and Thurik's basic analysis of the rate changes in self-employment and unemployment for 23 Organization of Economic Cooperation and Development (OECD) countries from 1974-1998, they chart the growth in entrepreneurship rates from 1974-1986

versus the growth in the UE from 1986-1998, as shown in Figure 4.1. Their findings have the majority of countries lying within the upper left quadrant of the chart, thus showing how decreases in entrepreneurship rates in first half of the time period relate to increased unemployment in the latter half of the time period. When this form of analysis is used for the 20 ERs of Prairie Canada from 1987-2006 and chart the growth in SEWE from 1987-1997, versus the growth in unemployment from 1997-2006, a similar slope result occurs although the majority of coordinant points are within the lower right quadrant, displaying an increase in the SEWE rate relates to a drop in unemployment levels as shown in Figure 4.2.

Figure 4.1 Audretsch, Carree and Thurik's (2001) Chart Depicting Changes in entrepreneurship and UEs in OECD countries from 1974-1998

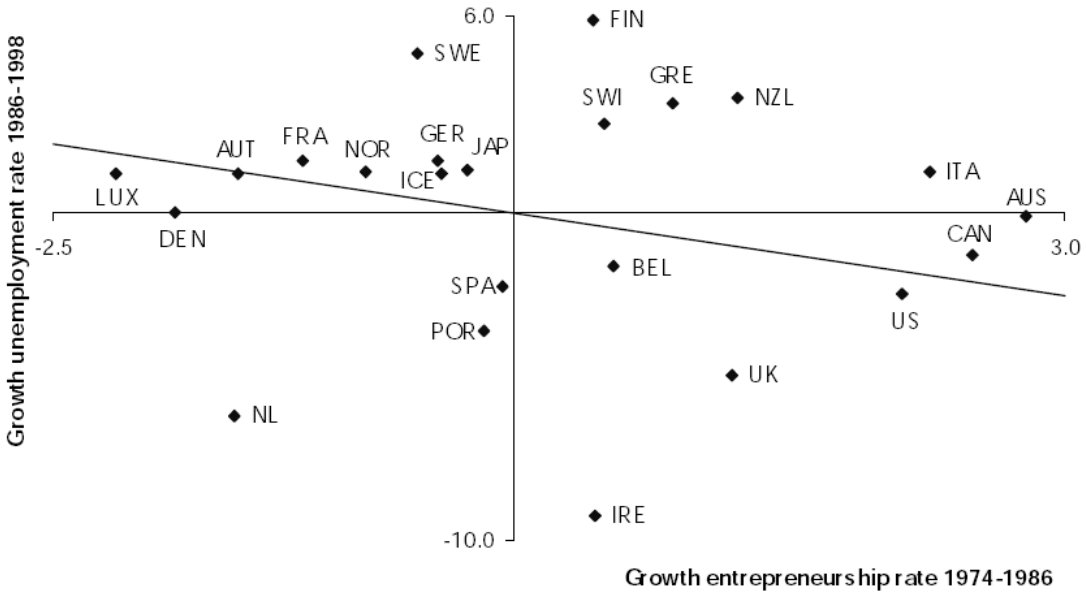
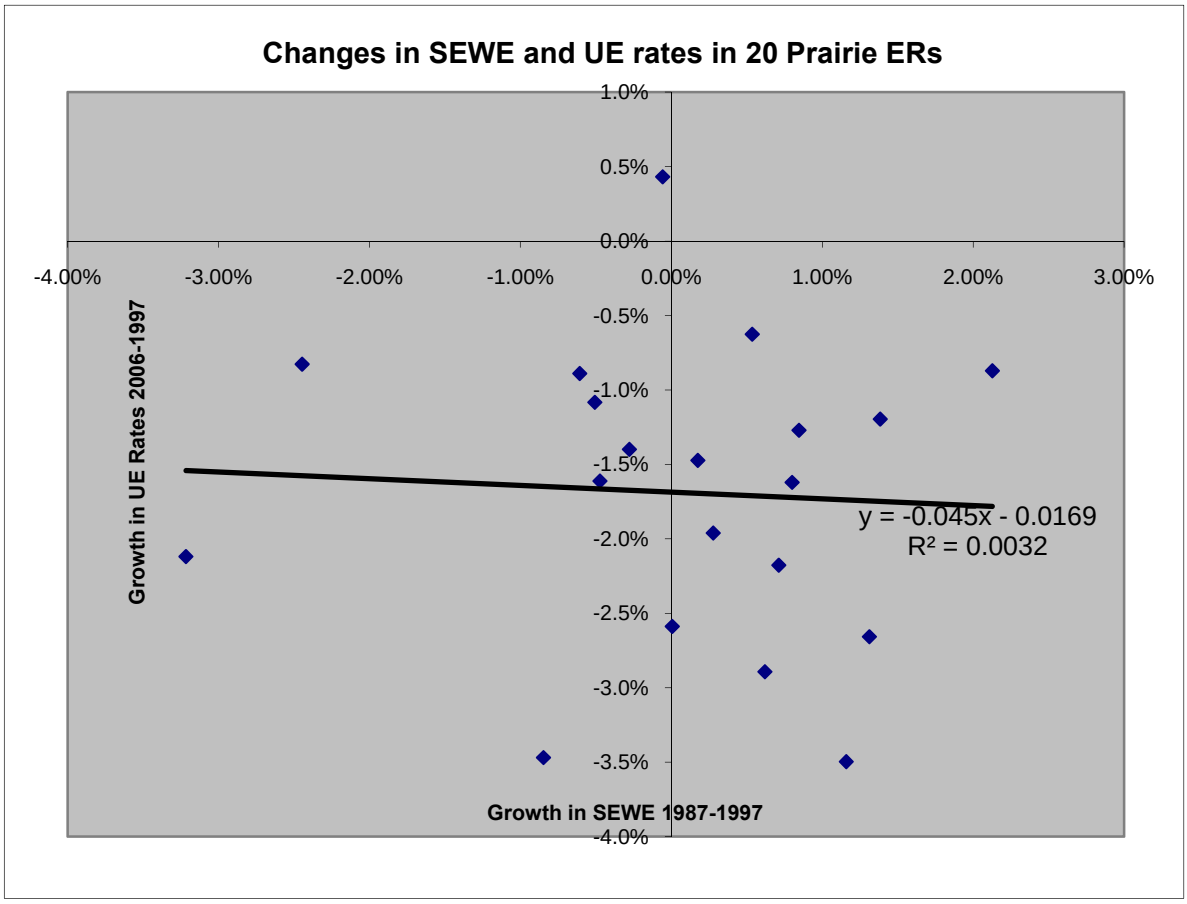


Figure 4.2 Changes in SEWE and UEs for the 20 ERs of Prairie Canada



The utilization of the SEWE variable within the Audretsch, Carree and Thurik (2001) regressions provides results that are inconsistent with their findings. Table 4.7 outlines the Audretsch et al. (2001) findings for changes in the rate of self-employment for the 23 OECD countries studied from 1974-1998.

Table 4.7 Audretsch et al. (2001) Self-Employment Results 23 OECD countries 1974-1998[70]

Change in Rate of Self-employment (E) ***Et - Et-L***				
		Lag Structure		
	L	**4 years**	**8 years**	**12 years**
Constant	***κ***	0.000	-0.004	-0.015
t-stat		*0.4*	*2.1*	*2.5*
$U_{t-L} - U_{t-2L}$	***λ***	0.057	0.141	0.248
t-stat		*2.4*	*3.8*	*3.1*
$E_{t-L} - E_{t-2L}$	***μ***	0.534	0.564	0.613
t-stat		*6.7*	*4.2*	*2.4*
R-squared		0.28	0.39	0.38
Observations		115	46	23

Within their regressions they find a positive relationship for the lagged change in both the unemployment and self-employment rates and claim this is evidence of the 'refugee' effect or being 'pushed' into entrepreneurship where increases in unemployment stimulate entrepreneurship. As the lag time increases they also report an increase in the size of both coefficients claiming it as evidence of larger impacts over time. This result is consistent with their hypothesis that the propensity to start a new firm is positively related to increases in unemployment.

Findings for the ERs of Prairie Canada from 1987-2006 are inconsistent with the previous work of Audretsch et al. (2001) as shown in Table 4.8. First, the utilization of the SEWE variable within the lagged change in self-employment variable provides a negative coefficient for all lag

[70] To test the hypothesis that the propensity to start a new firm is positively related to increases in unemployment, they estimate;

$$E_{it} - E_{i,t-L} = \kappa + \lambda(U_{i,t-L} - U_{i,t-2L}) + \mu(E_{i,t-L} - E_{i,t-2L}) + \varepsilon_{2it} \quad (3.1)$$

Where E is the data for self-employment rate, U is the standardized UE of the country, *i* is a country index, *L* is the time span in years. The expected sign of the co-efficient λ is positive and the expected sign of μ is also positive. While Audretsch et al. (2001) use E for self-employment this paper uses SEWE for the self-employment variable.

structures as compared to the positive and expected findings of Audretsch et al (2001). In addition the size of the SEWE lagged self-employment coefficient is decreasing as the lag increases while in Audrestch's et al (2001) it is increasing in size. With the large reduction in the unemployment rate for the regions during this time period the negative relationship on past self-employment rates may be an indication of labour demand being so strong, self-employment was not considered an employment choice as the risks for self-employment may have appeared to high for individuals. Secondly the sign of the coefficient for past changes in the rate of unemployment is both positive and negative depending on the lag length. This finding may be the result of all ERs having UE reductions, regardless of the SEWE rates over the lag periods. With the inconsistency in the unemployment variable and the negative relationship with the entrepreneurship variable this region provides evidence of an entrepreneurship 'pull' within a booming economy.

Table 4.8 Change in Rate of Self-employment in Prairie Canada 1987-2006[71] [72]

Change in Rate of Self-employment Prairie Canada $SEWE_t - SEWE_{t-L}$					
		Lag Structure			
	L	1 year	2 years	4 years	8 years
Constant	κ	3.09E-05	7.67E-05	0.0006	-0.0003
t-stat		*0.092*	*0.197*	*1.253*	*-0.273*
prob		*0.927*	*0.843*	*0.212*	*0.785*
$U_{t-L} - U_{t-2L}$	λ	0.0632	-0.0097	0.036	-0.018
t-stat		*1.605*	*-0.310*	*1.395*	*-0.249*
prob		*0.109*	*0.757*	*0.164*	*0.803*
$SEWE_{t-L} - SEWE_{t-2L}$	μ	-0.405	-0.426	-0.432	-0.631
t-stat		*-8.540*	*-8.705*	*-7.877*	*-8.989*
prob		*0.000*	*0.000*	*0.000*	*0.000*
R-squared		0.183	0.193	0.218	0.514
Adj. R-Squared		0.178	0.188	0.211	0.501
Observations		360	320	240	80

* weighted by using E-Views cross section weights option

In comparing the findings on the effects of self-employment on changes in unemployment, one variable was consistent with past findings while another was inconsistent as demonstrated by Tables 4.9 and 4.10. For both studies, past changes in the rate of unemployment has a negative correlation with current changes. Interestingly for the Audretsch et al. (2001) study, as the lag increases the magnitude of the UE, coefficient declines while this study finds the magnitude of the coefficient increasing as the lag increases. Although the coefficient for the self-employment

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[71] The model used is described below:

$$SEWE_{it} - SEWE_{i,t-L} = \kappa + \lambda(U_{i,t-L} - U_{i,t-2L}) + \mu(SEWE_{i,t-L} - SEWE_{i,t-2L}) + \varepsilon_{2it} \quad (3.3)$$

Where SEWE is the data for self-employment with employees rate for each economic region *i*, where the SEWE rate is a percentage of the total labour force over 15 years of age, *U* is the standardized unemployment rate of the ER, *i* is an ER index, *L* is the time span in years. The lags to be used are one, two, four and eight years, thus *L* is equal to 1, 2, 4, and 8. The expected sign of the co-efficients λ and μ is positive. The weighting for the regressions will be done by the cross-section option available for E-Views 5.1.

[72] See Footnote # 59istics Canada special run dataset of self-employed with employees, outside of agriculture and Statistic Canada's Labour Force Data for Economic Regions 1987-2006

participation percentage changes for Audretsch et al (2001) are negative and increasing the finding for Prairie Canada using SEWE rate changes have both positive and negative signs. When both eight-year lags are compared they do have similar signs for the coefficients indicating a negative correlation over the longer time lag. This finding is consistent with the hypothesis proposed of entrepreneurial activity leads to a decrease in subsequent unemployment.

Table 4.9 Audretsch et al. (2001) Unemployment Results 23 OECD countries 1974-1998[73]

Change in Rate of Unemployment $U_t - U_{t-L}$				
		Lag Structure		
	L	**4 years**	**8 years**	**12 years**
Constant	α	0.005	0.004	0.008
t-stat		*2.0*	*1.0*	*0.9*
$E_{t-L} - E_{t-2L}$	β	-0.312	-0.779	-0.843
t-stat		*1.0*	*2.6*	*2.1*
$U_{t-L} - U_{t-2L}$	γ	-0.197	-0.182	-0.176
t-stat		*2.1*	*2.1*	*1.4*
R-squared		0.04	0.22	0.28
Observations		115.0	46.0	23.0

[73] To test the hypothesis that an increase in entrepreneurial activity leads to a decrease in subsequent unemployment, they estimate:

$$U_{it} - U_{i,t-L} = \alpha + \beta(E_{i,t-L} - E_{i,t-2L}) + \gamma(U_{i,t-L} - U_{i,t-2L}) + \varepsilon_{1it} \qquad (3.2)$$

The expected sign of the co-efficient β is negative and the expected sign of γ is also negative.

Table 4.10 Changes in Rate of Unemployment in Prairie Canada 1987-2006[74][75]

Changes in Rate of Unemployment Prairie Canada $U_t - U_{t-L}$					
		Lag Structure			
	L	**1 year**	**2 years**	**4 years**	**8 years**
Constant	**α**	-0.002	-0.004	-0.012	-0.021
t-stat		*-4.796*	*-7.162*	*-16.705*	*-16.495*
prob		*0.000*	*0.000*	*0.000*	*0.000*
$SEWE_{t-L} - SEWE_{t-2L}$	**β**	-0.022	0.009	0.0403	-0.124
t-stat		*-0.507*	*0.173*	*0.725*	*-1.622*
prob		*0.612*	*0.863*	*0.469*	*0.109*
$U_{t-L} - U_{t-2L}$	**γ**	-0.13	-0.340	-0.379	-0.435
t-stat		*-2.517*	*-6.452*	*-8.145*	*-5.853*
prob		*0.012*	*0.000*	*0.000*	*0.000*
R-squared		0.017	0.118	0.222	0.311
Adj. R-Squared		0.012	0.112	0.215	0.293
Observations		360	320	240	80

* weighted by using E-Views cross section weights option

When region-specific regressions were run with cross section weighting the direction for each coefficient was inconsistent to the Audretsch et al. (2001) findings. This inconsistent result was found for each of the models and lag structures.

[74] To test the hypothesis that an increase in entrepreneurial activity leads to a decrease in subsequent unemployment, the following equation is estimated:

$$U_{it} - U_{i,t-L} = \alpha + \beta(SEWE_{i,t-L} - SEWE_{i,t-2L}) + \gamma(U_{i,t-L} - U_{i,t-2L}) + \varepsilon_{1it} \qquad (3.4)$$

The expected sign of the co-efficients β and γ is negative. Again the lags to be used are one, two, four and eight years, thus L is equal to 1, 2, 4, and 8 and the weighting for the regressions will be done by the cross-section option available for E-Views 5.1.

[75] See Footnote # 59istics Canada special run dataset of self-employed with employees, outside of agriculture and Statistic Canada's Labour Force Data for Economic Regions 1987-2006

Variation of the Georgellis and Wall (2000) Model of Self-Employment[76]

Table 4.11 outlines the findings from my variation of the Georgellis and Wall (2000) model. The variation model tested is described below:

$$SEWE_{it+1} = \alpha_i + \beta_1 U_{it} + \beta_2 U_{it}^2 + \lambda PD_{it} + \delta PubE_{it} + \varepsilon_{it} \qquad (3.6)$$

Where SEWE is the relative rate of self-employment with employees in a region

α_i is the region-specific intercept

U_i is the relative unemployment rate in economic region *i*

PD_i is the relative population density in economic region *i*

$PubE_i$ is the relative share of labour force employed in education, health care, social services and public administration in economic region *i*

Following Georgellis and Wall (2000) results, β_1 is expected to have a positive value while β_2 is to have an expected negative value. The population density value is used to account and adjust for the industrial sectors available in urban and rural ER. The expected sign of the co-efficient λ is positive, as density increases the opportunities available to the general public are expected to increase. The self-employment opportunities are expected to increase because the local market size is increased thus allowing the variety of industry sectors to increase (i.e. services required/offered increases).

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[76] The Georgellis and Wall (2000) model is:

$$S_{it+1} = \alpha_i + \beta_1 \omega_{it} + \beta_2 \omega_{it}^2 + \gamma_1 u_{it} + \gamma_2 u_{it}^2 + \delta' \mathrm{X}_{it} + \theta' Z_{it} + \varepsilon_{it} \qquad (3.5)$$

Where S is the rate of self-employment in a region

α_i is the region-specific intercept

ω_i is the average real wage for paid employment in region i

u_i is the UE in i (where γ_1 is found to be positive and γ_2 is found to be negative)

Xi is a vector of variables controlling for the industrial composition in i

Zi is a vector controlling for the characteristics of the labour force in i

The expected sign of the co-efficient δ is indeterminant, as higher rates of public employment may be used may be viewed as making a region 'unentrepreneurial' while public servant incomes maybe viewed as a market place positive for entrepreneurs to establish a business. Van Stel and Storey (2002) find that high growth in non-private sectors was partly associated with low start-up rates, resulting in a downward bias on the start-up rate coefficient.

The relative rates for the unemployment[77] and public employment[78] rates (percentages) were calculated by dividing the each annual regional rate by the corresponding annual average rate of 20 ERs. Population density was calculated by dividing the population figures for each ER, by the regional area in square kilometers. These figures were provided by Statistics Canada[79]. Within the population density calculation an anomaly occurs; the population density for the Winnipeg ER calculates out to in excess of 1,000 people per square kilometer, while the next highest population density is Calgary at 59.17 per square kilometer. In reviewing the dataset the Winnipeg ER consists of one census division (Winnipeg), which has a consistent land area of 571.6 km^2. Winnipeg's population density was removed from the annual average calculation helping to lower the annual average population density to below 10 people per km^2, although only three of the remaining 19 ERs: Calgary, Red Deer and Edmonton, have population density

[77] Unemployment was calculated from the labour force Survey annual numbers by subtracting total employment from the total labour force 15 years and older. The UE was calculated by dividing the calculated unemployment by the total labour force 15 years and older.
[78] The public employment level was calculated by totaling the number of individuals per region who were employed in the following labour related fields health care, education, social services, and public administration. The public employment rate was calculated by taking the public employment level and dividing it by the total labour force 15 years of age and older.
[79] Statistics Canada Table 051-0038 Estimates of population, by ER, sex and age group for July 1, 2001 Census boundaries, annual (persons) and land area from Census of Population figures for 1986, 1991, 1996, 2001, 2006.

calculations over the average.[80] Winnipeg's relative population density at the escalated value was included in the regression analysis documented in Table 4.11.

Table 4.11 Regression Results for Variation on Georgellis and Wall Model with no adjustments to Winnipeg's Population Density [81] [82]

Dependent Variable: Relative SEWE Rate ($_{I\,t+1}$)
Method: Pooled Least Squares
Sample (adjusted): 1987 2005
Total pool (balanced) observations: 380

Variable	Coefficient	Std. Error	t-Statistic	Prob.
Constant (C)	1.467604	0.168099	8.730597	0.0000
Relative Rate Unemployment (*U*)	0.247456	0.321677	0.769269	0.4422
Relative Rate Unemployment Squared (U^2)	-0.136721	0.155830	-0.877370	0.3808
Relative Rate Population Density (*PD*)	-0.001684	0.000424	-3.973767	0.0001
Relative Rate Public Employment (*PubE*)	-0.561242	0.064001	-8.769332	0.0000

R-squared	0.250886	Adjusted R-squared	0.242895
S.E. of regression	0.184159	Sum squared resid	12.71791
F-statistic	31.39777	Prob(F-statistic)	0.000000

[80] In a calculation using 1996 and 2001 census tracts (neighbourhood) data for Large Urban Centres, Winnipeg had population densities 154 and 154 people per km^2 and for Calgary 176 and 211 people per km^2. Also Winnipeg covers a land area of 4,087 and 4,121 km^2 over 157 and 165 census tracts while Calgary covers 5,119 and 5,083 km^2 over 153 and 193 census tracts. The land area used for ER 4830 Calgary in the population density calculation for this document 12,426 km^2.

[81] The model is described below $$SEWE_{it+1} = \alpha_i + \beta_1 U_{it} + \beta_2 U_{it}^2 + \lambda PD_{it} + \delta PubE_{it} + \varepsilon_{it} \quad (3.6)$$

[82] See Footnote # 59istics Canada special run dataset of self-employed with employees, outside of agriculture and Statistic Canada's Labour Force Data for Economic Regions 1987-2006

Table 4.12 Regression Results for Variation on Georgellis and Wall Model with Adjustment made in Winnipeg's Relative Population Density[83]

Dependent Variable: Relative SEWE Rate ($_{I\,t+1}$)
Method: Pooled Least Squares
Sample (adjusted): 1987 2005
Total pool (balanced) observations: 380

Variable	Coefficient	Std. Error	t-Statistic	Prob.
Constant (C)	1.467831	0.170324	8.617862	0.0000
Relative Rate Unemployment (*U*)	0.360148	0.327030	1.101269	0.2715
Relative Rate Unemployment Squared (U^2)	-0.190915	0.157728	-1.210403	0.2269
Relative Rate Population Density (*PD*)	-0.012786	0.004665	-2.740623	0.0064
Relative Rate Public Employment (*PubE*)	-0.612121	0.063654	-9.616429	0.0000

R-squared	0.234670	Adjusted R-squared	0.226507
S.E. of regression	0.186141	Sum squared resid	12.99320
F-statistic	28.74622	Prob(F-statistic)	0.000000

Table 4.12 shows the results of the regression analysis using all relative measures for the explanatory variables and the population density for Winnipeg changed to 56.0 people per km^2 for 1986 and increasing by 1% per year until 2007. This calculation sets Winnipeg's population density just below Edmonton's for each year. The same average calculation of 9.2 people per km^2 was used as the level for the relative calculation. The sign of the coefficients for the unemployment rate and the square of the UE are similar to the Georgellis and Wall's findings: positive for the unemployment and negative for the square of the UE. With the unemployment

[83] See Footnote # 59istics Canada special run dataset of self-employed with employees, outside of agriculture and Statistic Canada's Labour Force Data for Economic Regions 1987-2006

coefficients having similar signs, it can be assumed that the SEWE rate of Prairie Canada from 1987-2006 follows a similar pattern to the self-employed of British regions from 1983-1995, which is a hill-shaped relationship for self-employment and unemployment. (Georgellis and Wall (2000) The hill-shaped relationship emphasizes that either the 'push' or 'pull' effect will dominate depending upon the relative unemployment level. When the relative UE is low, a rise in unemployment will raise self-employment rates, while in areas with a high relative UE, a further increase in the UE will lower self-employment rates. The data supports the hill assumption as being correct or more aptly described as concave from below. With the high probability figure for the relative unemployment rate and the unemployment rate squared variables, the variables are not statistically significant.

With all ERs showing declines in UEs for the time period, this would appear to support the assumption that a pull effect may be occurring in the Prairies. Since the unemployment variable also enters as a quadratic, the overall effect of the variable will be contained within the combination of the two coefficients.

A negative correlation between the relative SEWE rate and relative population density is observed, although the magnitude of the coefficient is small. A positive correlation was expected because population density was used as a proxy for more developed economy (i.e. more market size opportunities for entrepreneurship). Audretsch et al. (2006) had found population density a positive and significant correlation in the German regions they studied. The size and population of the regions of Germany are not comparable to Prairie Canada. When increases in population density are tied to 'economic development', Acs et al. (1994) would have predicted a negative correlation based on Kuznets (1966) theory. This finding may be explained by larger firms being located within the more populous regions.

The expectation on the direction and magnitude of the public employee variable was indeterminate. Within Georgellis and Wall's model, they utilized nine industry composition codes as explanatory variables. One of these industries was public administration, which is only a portion of the value used for public employees. Within their findings public administration had a positive correlation, while my regression found a negative relationship with a large coefficient. The negative correlation between the percentage of employees within public occupations would appear to be consistent with anecdotal theories which purpose that 'government towns' are less 'entrepreneurial' than others. This finding has parallels to the Van Stel and Storey (2002) finding that high growth in non-private sectors result in a downward bias on the start-up rate coefficient, although their work reflects growth and this measure is a relative rate.

Additional analysis was performed on the two variations of the Georgellis and Wall models to test joint significance of the unemployment variables. The null hypothesis would be that the unemployment rate and the square of the unemployment rate play no role in the subsequent self-employment participation rate, thus $\beta_1=0$ and $\beta_2=0$. Table 4.13 depicts the results of sum square of the residuals for the unrestricted and restricted models and the comparative F statistics with various significance levels.

Table 4.13 Joint Significance Test Results of Unemployment on Georgellis and Wall models[84]

	Model 1: No adjustment in Winnipeg's Population Density	Model 2: Adjustments in Winnipeg's Population Density
$RSS_{restricted}$	12.71791	12.9932
$RSS_{unrestricted}$	12.76039	13.05918
Difference	-0.04248	-0.06598
Difference/ $RSS_{unrestricted}$	-0.003329	-0.005052
2/(n-5)	0.005333	0.005333
$F_c = \|(Difference/ RSS_{unrestricted})/(2/(n-5))\|$	0.62423	0.94731
F^* (.10, 2, 275)	2.30259	2.30259
F^* (.05, 2, 275)	2.9957	2.9957
F^* (.025, 2, 275)	3.6889	3.6889
F^* (.01, 2, 275)	4.605	4.605

Since the $F_c < F^*$ at all significance values, we can not reject the null hypothesis, thus within these equations the unemployment variables may not be significant in influencing subsequent relative self-employment participation rates

Conclusion

Similar to the Georgellis and Wall (2000) findings, the ERs' SEWE participation percentages not only vary over regions but within regions over the 20-year time frame. When the SEWE variable is used as an absolute, percentage, index or growth measure, Alberta and the Alberta ERs consistently lead the Prairie provinces as being the most entrepreneurial. It appears Alberta

[84]See Footnote # 59istics Canada special run dataset of self-employed with employees, outside of agriculture and Statistic Canada's Labour Force Data for Economic Regions 1987-2006 and population density figures calculated from Statistic's Canada data (see appendix)

has benefited by having an estimated three or four more SEWE per thousand population over the past 20 years. In absolute numbers, Alberta added 44,200 entrepreneurs over the time period studied while Saskatchewan only added 1,700 and Manitoba lost 2,600. It appears Alberta's success breeds more success just as Schumpeter described would happen.

Although all the ERs lowered their UEs, it may not have been from increased TE. Alberta's 75.04% increase in SEWE over the 20-year study period has rewarded the province with a 57.51% increase in TE, a 60.21% increase in FTE and an employment over population growth measure of 18.89%. Saskatchewan had a 7.69% increase in SEWE and received a 6.43% increase in TE, a 10.22% increase in FTE and an employment over population growth measure of 11.02%. Manitoba lagged even further behind Alberta with a 10.36% decrease in SEWE over the twenty year study period coinciding with a 16.19% increase in total employment, a 15.18% increase in FTE and an employment over population growth measure of 8.93%.

The simple analysis and charting of SEWE percentages in the first ten years of study versus the second 10 years of unemployment rates depicts Schmitz's expected relationship that increased levels of entrepreneurship are rewarded with higher levels of growth as measured by unemployment rates and is similar to the results Audretsch et al. (2001) obtained.

The utilization of the SEWE variable within the regression models did not provide much clarity on the self-employment unemployment relationship. This result may have been effected by the dataset and the economic conditions of the region and period of study. None of the earlier regional studies spoke to being completed during an economic boom. From the results it does appear that the unemployment – self-employment relationship is concave from below and the entrepreneurial choice will be influenced by the relative level of unemployment.

CHAPTER 5
ADDITIONAL ANALYSIS – RELATIVE MEASURES

A specific question raised in this thesis is whether there were greater increases in employment within areas that had higher Self-Employed individuals, not employed in agriculture, with employees (SEWE) percentages than economic regions (ER) regions with lower SEWE percentages. This Chapter is dedicated to developing another calculation to address this thesis question. This additional calculation attempts to capture whether variations from the annual average of ER SEWE participation percentages is reflected in future employment numbers for various time frames. The new calculations will incorporate rolling averages and relative rates for both measures over varying time periods.

Although the Audretsch's et al. (2001) modeled chart (Figure 4.2) depicting the self-employment – unemployment relationship over a split time frame did provide a finding comparable to Audretsch et al. (2001) that increases (decreases) in entrepreneurship produces subsequent decreases (increases) in unemployment rates; there are two problems with the observation in answering the above thesis question.

First, we know from the dataset used that all 20 ERs had declines in their unemployment rates (UEs) over the 20-year time frame. This information calls into question the role of the entrepreneur since there were various growths and declines in SEWE participation percentages within the ERs over the same time period. Secondly, the UE is a questionable variable to measure the success of entrepreneurs in a region as it is at least two steps removed from the entrepreneur. Firms create output. Jobs are a bi-product of business expansion resulting from a market successful output (i.e. the expansion of output to meet consumer demand.). The lowering

of unemployment in a region is reflective of the total number of jobs and labour force size, not necessarily a direct effect of the entrepreneur. An entrepreneur has very little control on the size of a regional labour force or government policies and/or decisions which influence employment and labour force figures.

Given the goal of this paper, the problems of the dataset and various models using unemployment rates to measure 'economic success,' the utilization of comparable relative measures may assist us in addressing the thesis question. The utilization of comparable relative measures begins with the Georgellis and Wall (2000) chart.

Relative Measures and the Georgellis and Wall (2000) Chart

Within the introductory component of Georgellis and Wall (2000) journal article, they depict the relative rates of self-employment for the various regions versus the annual average of Great Britain for the period of 1978-1995 as a 3D chart. Their finding is that the regional rates of self-employment relative to the national average differed widely across regions and fluctuated significantly over the period.

What else can be learned from using relative measures of entrepreneurship and job creation? What if we could compare relative entrepreneurship rates with the resulting relative job creation rates, would this not provide one with a better answer to the central questions of this paper? For the purposes of this paper the ER relative rate is measured by comparing their regional variable value against the annual average of the same variable for the 20 regions. The variables to be reviewed and calculated are: the SEWE participation percentage, the total employment growth percentage and the full-time employment (FTE) growth percentage expressed as a relative rate or percentage. Relative percentages over 100% show a region performing above average while relative percentages under 100% show a region performing below average.

To assist in making the calculation a more accurate depiction of the economic realities of a region and entrepreneurship, the relative rates are calculated against rolling averages for varying periods of time. The utilization of relative rates calculated against rolling averages is designed to address externalities, which cause large fluctuations in absolute and percentage figures within regions with lower populations. It will also assist in addressing the time lag of job creation figures versus the start of a new enterprise. Each variable is calculated over six time periods, one through six years.

By calculating rolling averages of varying lengths for all ERs, numerous comparisons can be made. Short, medium and long-term relative rates in self-employment can be compared to short, medium and long-term FTE and total employment (TE). Although short, medium and long-term are relative, for the purposes of this study the short-term is two years, medium is four years and long-term is six years. The rolling averages also allow for the comparisons against different base years.

The rolling average also allow for comparisons of various regions and study years, which have met certain standards, such as ERs which has had above average self-employment rates for three consecutive years utilizing a five-year rolling average. The contrary can also be studied, areas which have underperformed relative to others.

Calculating Relative Rates, Nomenclature and Comments

In calculating the percentage change in employment growth, the lag period *l* is subtracted from the study year to find the base year and the absolute value for the two years are subtracted from each other. The difference in the absolute value between the study year and the base year is then divided by the absolute value of the base year. Thus,

$$\Delta \mathrm{TE} = \mathrm{TE}_{t,i} - \mathrm{TE}_{t-l,i} \qquad (5.1)$$

where *l* is lag length in years and *i* is the ER, the percentage is then calculated as:

$$G\mathrm{TE}_i^{s,l} = \frac{\Delta \mathrm{TE}}{\mathrm{TE}_{t-l,i}} * 100\% \qquad (5.2)$$

where *s* is the study year, thus $G\mathrm{TE}_i^{1997,4}$ is the percentage change in employment for community *i* from 1993-1997.

Each ER is given a relative rate based upon their regional growth rate for the lag. This relative rate is the community growth rate, $G\mathrm{TE}_i^{s,l}$, divided by the average growth rate for the twenty ERs for the same study year and lag period. Thus the relative rate of total employment growth (RRTE) for community *i* is:

$$RR\mathrm{TE}_i^{s,l} = \frac{G\mathrm{TE}_i^{s,l}}{[(\sum_{i=ER}^{n=20} G\mathrm{TE}_i^{s,l})/n]} * 100\% \qquad (5.3)$$

Relative rates above 100% would be ERs with above average employment growth while ERs with relative ratings below 100% would have below average TE growth. The same calculation is done for full-time employment resulting in the relative rate of full-time employment (RRFTE)

Although the principles are the same for calculating the relative rate for SEWE, one notation and one calculation concern must be addressed. While $G\mathrm{TE}_i^{s,l}$ calculated the absolute change for the lag period prior (study year minus lag), the relative rate for SEWE is based upon the average of SEWE rates in consecutive periods, and the average includes the study year. $ASE_i^{s,l}$ is the average SEWE participation percentage for the study year and (*l*-1) years prior. Thus

$$ASE_i^{1997,3} = \frac{(SEWE_i^{1997} + SEWE_i^{1996} + SEWE_i^{1995})}{l} \qquad (5.4)$$

where SEWE is the participation percentage of SEWE within the labour force above the age of 15 years old.

And the relative rate of self-employment (RRSE) is the ER average rate, $ASE_i^{s,l}$, divided by the average self-employment rate for the 20 ERs for the same study year and lag period. Thus, the RRSE rate for community *i* is:

$$RRSE_i^{s,l} = \frac{ASE_i^{s,l}}{[(\sum_{i=ER}^{n=20} ASE_i^{s,l})/n]} * 100\% \qquad (5.5)$$

Just like the relative employment rate, relative rates above 100% would be ERs with above average self-employment while ERs with relative ratings below 100% would have below average self-employment rates.[85]

Two arguments can be made for comparisons of self-employment rates and employment change rates. One argument is, since the entrepreneurship effects on employment should start a year following the entrepreneurship period in study, the employment base year (the study year minus lag) for the employment relative rate should be one year greater than the entrepreneurship study year. Thus $RRSE_i^{1997,3}$ could be compared to $RRTE_i^{2004,6}$ since the base year for the relative rate in total employment is 1998 (2004-06) a year following 1997. A counter argument is the SEWE variable includes the condition 'with employees' thus the comparison period should include the same year the self-employment change occurred because the SEWE respondent has already started to increase employment or they would not be classified as 'with employees'.

Results

Figure 5.1 depicts each ER's participation percentage of SEWE versus the annual regional average of self-employment rates for the 20-years of study, similar to the Georgellis and Wall

[85] Due to the size of the spreadsheets, the base figures, absolute changes, rolling averages and relative measures for TE, FTE, and self-employment are contained with the appendix, where possible portions of spreadsheets are incorporated into the body to aid explanations.

(2000) chart. This visual depiction shows how Saskatchewan has been a perennial underachiever in the percentage of SEWE. It also shows the longstanding tradition of Alberta to house a higher percentage on average of SEWE. In reading the table, the ERs are graphed from right to left; the way they are listed from the top to bottom on all tables. Manitoba is in the extreme right, Saskatchewan ERs are in the middle and Alberta ERs are on the extreme left. The identification number for each ER increases from right to left. A measure of 100% equals the annual average. The most recent year is nearer the back wall and the relative rate for 1987 is at the front.

Figure 5.1 ER SEWE rates as a percentage of annual average

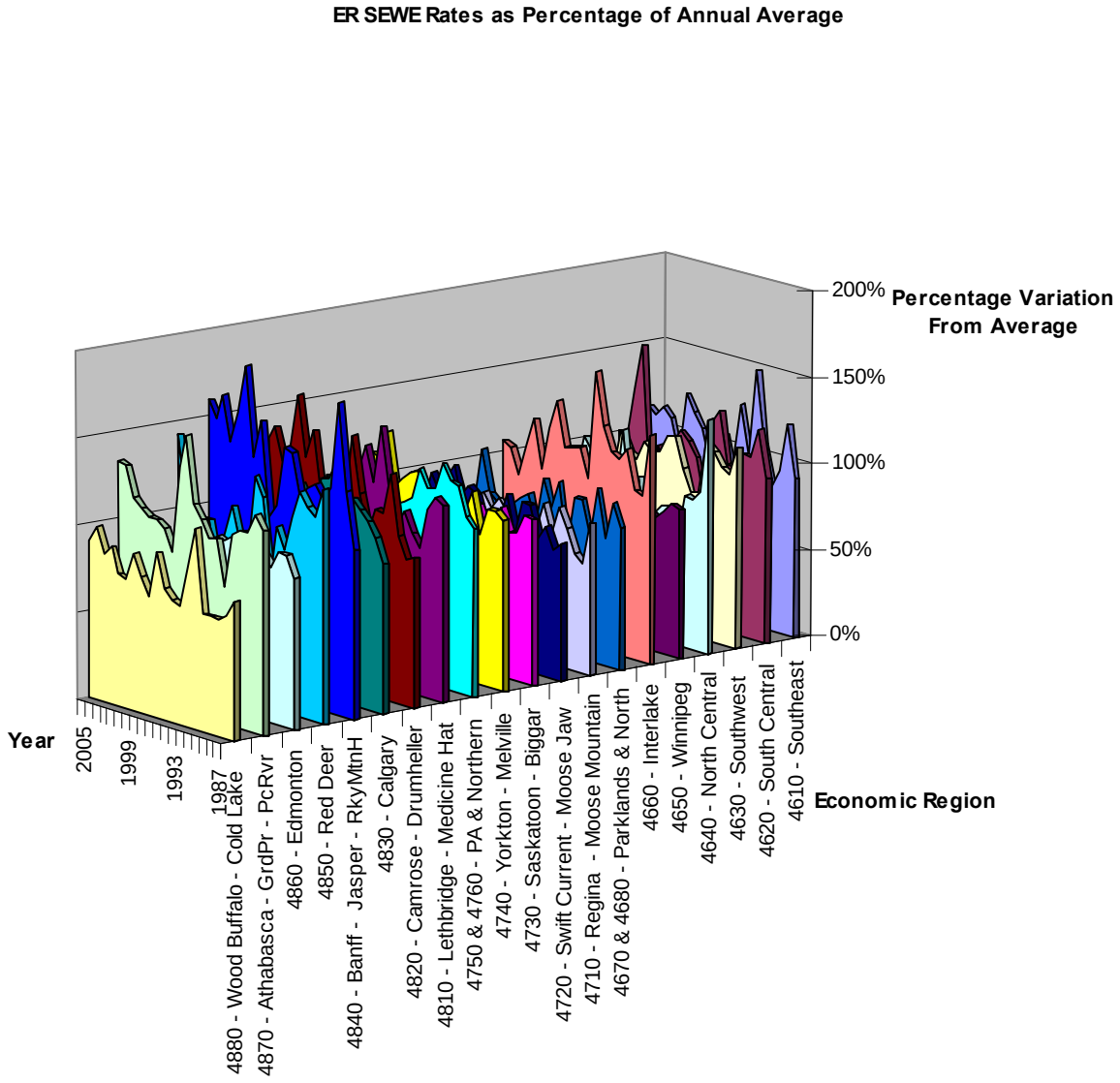


Table 5.1 depicts the number of years an ER's SEWE rate was above annual average SEWE rate. Of note is the number of years the provincial SEWE participation percentages of Manitoba and Saskatchewan scored above annual regional averages, only once combined for the two provinces. Numerous years of SEWE participation percentages above the annual average does not guarantee 'economic success' but of the nine ERs which had 12 or more years above the regional averages, only one ER, Yorkton - Melville, did not post positive growth in TE or FTE.

Table 5.1 SEWE rates above annual regional averages (Percentage SEWE/Labour Force 15 years and older)[86]

Geography	SEWE Average	Years Above	Total Emp. Growth	Total Emp. % Growth	Full-Time Emp. Growth	Full-Time Emp. % Growth
Manitoba	4.21%	0	81.8	16.19%	62.1	15.18%
4610 - Southeast	5.32%	12	15.0	41.78%	13.2	46.81%
4620 - South Central	5.23%	11	4.2	18.50%	3.9	22.67%
4630 - Southwest	4.96%	10	-0.6	-1.16%	1.4	3.59%
4640 - North Central	4.36%	3	3.9	21.20%	3.6	24.00%
4650 - Winnipeg	3.68%	0	50.7	16.87%	33.8	13.64%
4660 - Interlake	5.73%	15	11.1	32.55%	8.1	28.93%
4670 & 4680 - Parklands & North	4.21%	2	-2.6	-6.21%	-2.0	-5.90%
Saskatchewan	4.56%	1	29.7	6.43%	37.1	10.22%
4710 - Regina - Moose Mountain	4.03%	0	10.6	7.75%	12.4	11.30%
4720 - Swift Current - Moose Jaw	4.46%	1	-2.5	-4.39%	0.8	1.87%
4730 - Saskatoon - Biggar	4.54%	2	25.5	19.51%	23.4	22.67%
4740 - Yorkton - Melville	5.10%	12	-5.1	-11.16%	-1.9	-5.62%
4750 & 4760 - PA & Northern	5.24%	12	1.3	1.42%	2.5	3.40%
Alberta	5.17%	16	683.0	57.51%	590.1	60.21%
4810 - Lethbridge - Medicine Hat	5.44%	13	45.1	48.81%	37.6	50.20%
4820 - Camrose - Drumheller	5.87%	15	28.4	36.09%	24.3	39.13%
4830 - Calgary	5.34%	12	315.2	80.86%	276.5	85.16%
4840 - Banff - Jasper - RkyMtnH	6.94%	19	18.6	60.00%	16.0	61.78%
4850 - Red Deer	5.33%	11	37.3	61.86%	35.4	76.62%
4860 - Edmonton	4.66%	3	165.1	39.57%	135.7	39.07%
4870 - Athabasca - GrdPr - PcRvr	5.73%	18	47.3	57.89%	41.4	61.15%
4880 - Wood Buffalo - Cold Lake	4.06%	1	26.0	71.04%	23.2	74.36%

[86]See Footnote # 59istics Canada special run dataset of self-employed with employees, outside of agriculture and Statistic Canada's Labour Force Data for Economic Regions 1987-2006

Not surprisingly ERs with the most years above the SEWE regional averages also have the higher regional averages. The five ERs which have 13 or more years above the SEWE annual regional average, have the five highest regional SEWE participation percentage averages. Within this group of five ERs the lowest percentage growth in TE is 32.55% and 28.93% for full-time employment growth. Both of these figures were posted by the Interlake region of Manitoba.

Table 5.2 depicts the same information but sorted by the ERs with the most years above the regional averages.

Table 5.2 ERs sorted by most years of SEWE rates above regional averages[87]

Geography	SEWE Average	Years Above	Total Emp. Growth	Total Emp. % Growth	Full-Time Emp. Growth	Full-Time Emp. % Growth
4840 - Banff - Jasper - RkyMtnH	6.94%	19	18.6	60.00%	16.0	61.78%
4870 - Athabasca - GrdPr - PcRvr	5.73%	18	47.3	57.89%	41.4	61.15%
4820 - Camrose - Drumheller	5.87%	15	28.4	36.09%	24.3	39.13%
4660 - Interlake	5.73%	15	11.1	32.55%	8.1	28.93%
4810 - Lethbridge - Medicine Hat	5.44%	13	45.1	48.81%	37.6	50.20%
4830 - Calgary	5.34%	12	315.2	80.86%	276.5	85.16%
4610 - Southeast	5.32%	12	15.0	41.78%	13.2	46.81%
4750 & 4760 - PA & Northern	5.24%	12	1.3	1.42%	2.5	3.40%
4740 - Yorkton - Melville	5.10%	12	-5.1	-11.16%	-1.9	-5.62%
4850 - Red Deer	5.33%	11	37.3	61.86%	35.4	76.62%
4620 - South Central	5.23%	11	4.2	18.50%	3.9	22.67%
4630 - Southwest	4.96%	10	-0.6	-1.16%	1.4	3.59%
4860 - Edmonton	4.66%	3	165.1	39.57%	135.7	39.07%
4640 - North Central	4.36%	3	3.9	21.20%	3.6	24.00%
4730 - Saskatoon - Biggar	4.54%	2	25.5	19.51%	23.4	22.67%
4670 & 4680 - Parklands & North	4.21%	2	-2.6	-6.21%	-2.0	-5.90%
4720 - Swift Current - Moose Jaw	4.46%	1	-2.5	-4.39%	0.8	1.87%
4880 - Wood Buffalo - Cold Lake	4.06%	1	26.0	71.04%	23.2	74.36%
4710 - Regina - Moose Mountain	4.03%	0	10.6	7.75%	12.4	11.30%
4650 - Winnipeg	3.68%	0	50.7	16.87%	33.8	13.64%

As depicted by the findings for Prince Albert and Northern Saskatchewan, Yorkton - Melville, Wood Buffalo – Cold Lake and Winnipeg, many years of the SEWE being above average may not lead to high percentages in total or full-time employment growth.

[87] See Footnote # 59istics Canada special run dataset of self-employed with employees, outside of agriculture and Statistic Canada's Labour Force Data for Economic Regions 1987-2006

The following three tables (Tables 5.3 through 5.5) highlight the results of the three relative rate measures for the ERs based upon the 6 rolling averages calculations. The figures in the chart show the number of years an ER had a score of 100% or higher for the relative rate measure. The findings show how an ER with a sustained higher than average level of entrepreneurship, as measured by having 12+ years above the rolling six-year average, also have more years of higher than average TE and FTE within their ER. Those ERs who had 12+ years of 100% or higher RRSE scores using the six-year rolling average are highlighted in yellow in the Tables 5.3 through 5.5 to assist in identifying their success in RRTE and RRFTE.

Tables 5.3 through 5.5 further highlight Saskatchewan's poor performance in the relative rate of entrepreneurs and job creation measured as either TE or FTE from 1987-2006. Interestingly, the Yorkton – Melville ER is the only Saskatchewan ER to have 10+ years of RRSE measured above the six-year rolling average yet over the 20-year period of study it had a loss in absolute TE and FTE and no years above the regional averages for RRTE and RRFTE.

Table 5.3 Number of years ER's RRSE measure is above regional average for various years of rolling averages[88]

SEWE	Lag length					
	1	2	3	4	5	6
Geography	max=20	max=19	max=18	max=17	max=16	max=15
4610 - Southeast	12	12	14	14	14	13
4620 - South Central	11	12	13	13	14	12
4630 - Southwest	10	10	9	9	7	8
4640 - North Central	3	2	1	1	0	0
4650 - Winnipeg	0	0	0	0	0	0
4660 - Interlake	15	16	16	17	16	15
4670 & 4680 - Parklands & North	2	0	0	0	0	0
4710 - Regina - Moose Mountain	0	0	0	0	0	0
4720 - Swift Current - Moose Jaw	1	1	0	0	0	0
4730 - Saskatoon - Biggar	2	1	0	0	0	0
4740 - Yorkton - Melville	12	12	11	11	11	11
4750 & 4760 - PA & Northern	12	10	10	8	8	8
4810 - Lethbridge - Medicine Hat	13	12	13	13	14	13
4820 - Camrose - Drumheller	15	17	17	16	16	15
4830 - Calgary	12	13	13	12	11	11
4840 - Banff - Jasper - RkyMtnH	19	19	18	17	16	15
4850 - Red Deer	11	10	10	9	11	10
4860 - Edmonton	3	0	0	0	0	0
4870 - Athabasca - GrdPr - PcRvr	18	16	15	16	16	15
4880 - Wood Buffalo - Cold Lake	1	1	0	0	0	0

[88] See Footnote # 59istics Canada special run dataset of self-employed with employees, outside of agriculture 1987-2006

Table 5.4 Number of years ER's RRTE measure is above regional average for various years of rolling averages[89]

RRTE	Lag length					
	1	2	3	4	5	6
Geography	max=20	max=19	max=18	max=17	max=16	max=15
4610 - Southeast	13	12	11	12	11	11
4620 - South Central	9	8	6	7	7	7
4630 - Southwest	6	5	3	1	2	2
4640 - North Central	10	9	9	8	5	5
4650 - Winnipeg	7	9	6	6	5	5
4660 - Interlake	10	9	10	9	8	7
4670 & 4680 - Parklands & North	6	6	3	0	0	0
4710 - Regina - Moose Mountain	3	3	0	0	0	0
4720 - Swift Current - Moose Jaw	10	4	1	1	0	0
4730 - Saskatoon - Biggar	8	4	5	5	3	3
4740 - Yorkton - Melville	5	1	3	1	1	0
4750 & 4760 - PA & Northern	6	4	3	0	0	0
4810 - Lethbridge - Medicine Hat	10	10	13	13	13	13
4820 - Camrose - Drumheller	11	9	9	11	10	7
4830 - Calgary	13	14	14	14	14	14
4840 - Banff - Jasper - RkyMtnH	9	12	13	10	9	10
4850 - Red Deer	13	16	15	13	13	14
4860 - Edmonton	10	13	12	10	12	12
4870 - Athabasca - GrdPr - PcRvr	13	13	12	12	10	9
4880 - Wood Buffalo - Cold Lake	11	11	11	13	11	10

[89] See Footnote # 59istics Canada special run dataset of self-employed with employees, outside of agriculture and Statistic Canada's Labour Force Data for Economic Regions 1987-2006

Table 5.5 Number of years ER's RRFTE measure is above regional average for various years of rolling averages[90]

RRFTE	Lag length					
	1	2	3	4	5	6
Geography	max=20	max=19	max=18	max=17	max=16	max=15
4610 - Southeast	12	12	13	10	11	12
4620 - South Central	13	11	12	9	6	6
4630 - Southwest	6	5	6	7	4	4
4640 - North Central	12	7	7	8	6	7
4650 - Winnipeg	7	9	7	5	4	3
4660 - Interlake	11	9	8	7	7	7
4670 & 4680 - Parklands & North	5	5	3	1	1	0
4710 - Regina - Moose Mountain	5	6	3	3	0	0
4720 - Swift Current - Moose Jaw	9	5	4	2	0	0
4730 - Saskatoon - Biggar	9	7	7	6	5	5
4740 - Yorkton - Melville	7	3	4	2	0	0
4750 & 4760 - PA & Northern	7	5	3	2	2	0
4810 - Lethbridge - Medicine Hat	9	9	12	8	12	9
4820 - Camrose - Drumheller	7	6	6	9	9	8
4830 - Calgary	13	15	14	12	14	14
4840 - Banff - Jasper - RkyMtnH	12	9	9	9	10	8
4850 - Red Deer	11	16	15	14	14	12
4860 - Edmonton	11	11	11	9	8	8
4870 - Athabasca - GrdPr - PcRvr	12	12	11	11	10	9
4880 - Wood Buffalo - Cold Lake	13	11	10	11	10	8

Figure 5.2 depicts a random comparison based upon an early SEWE rate with medium length (three years) followed by a long-term (six-year) FTE relative rate to provide one example of how the relative rate dataset can be used. As the figure shows, there is a strong positive relationship between above average RRSE and RRFTE for the years and lags picked, although there is a strong variation in each regional performance.

[90] See Footnote # 59istics Canada special run dataset of self-employed with employees, outside of agriculture and Statistic Canada's Labour Force Data for Economic Regions 1987-2006

Figure 5.2 The relationship between $RRSE_i^{1989,3}$ versus $RRFTE_i^{1996,6}$

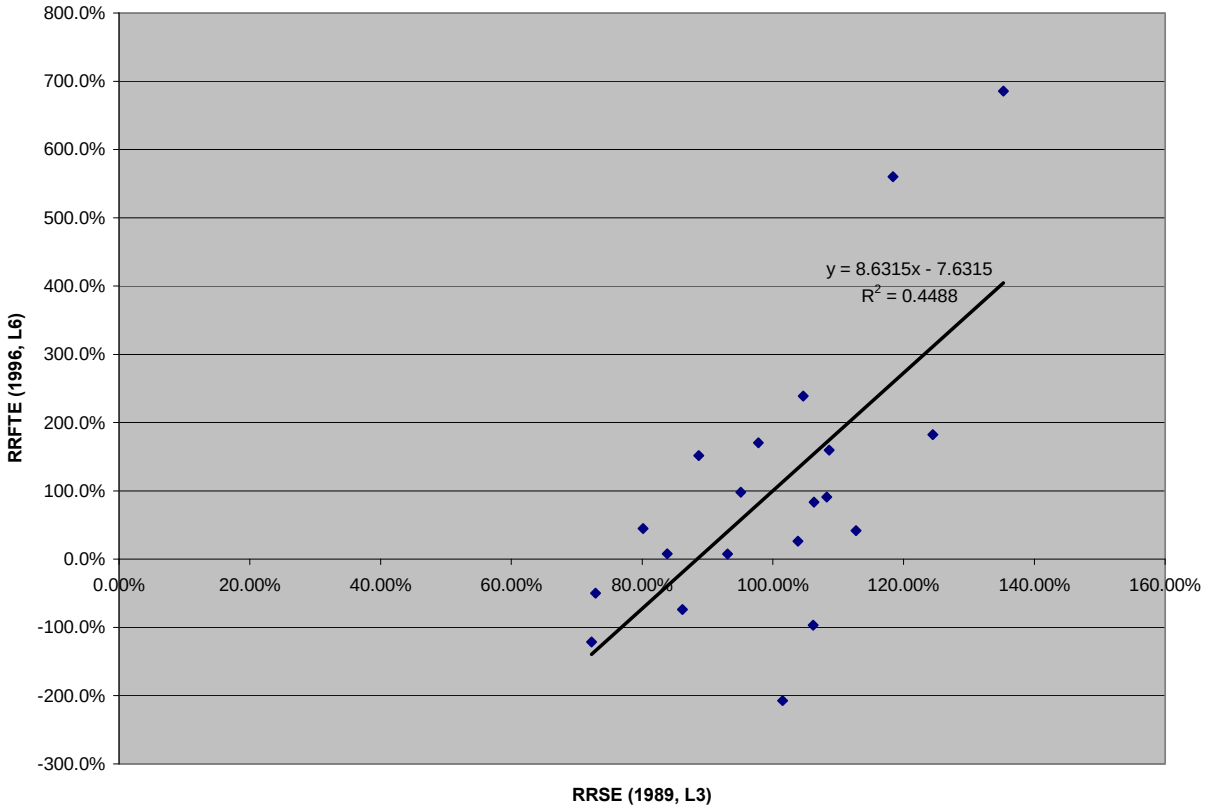
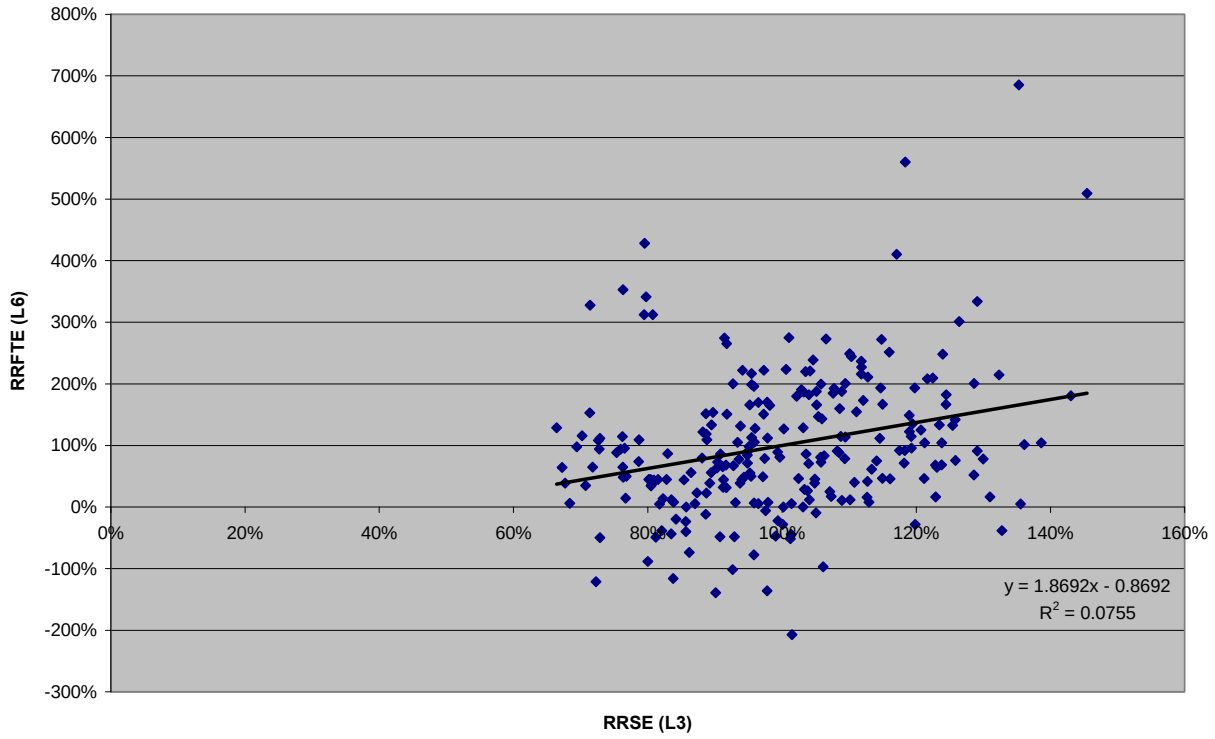


Figure 5.3 expands the depiction of the three-year RRSE versus the subsequent six-year RRFTE. Although the R-squared value drop dramatically there is still a positive relationship between relative rates of full-time employment following higher than average levels of self-employment. The lower R-squared value reduces the weight of the relative measure.

Figure 5.3 The relationship between all three-year relative self-employment rates versus subsequent six-year rolling average full-time employment rates



Conclusion

The 400 individual measures of SEWE participation percentages over the 20-year time period average to 5.01%. This value can be approximated as an expected measure of 'entrepreneurism' within a region as Southwestern Manitoba has the nearest percentage with an average SEWE participation percentage of 4.96% and was above the annual average 10 years. The preceding average to Southwestern Manitoba was Edmonton at a 4.66% SEWE participation percentage but it was only above the annual average three years.

The use of relative measures provides a useful and functional tool to chart the employment - job creation relationship between regions, time periods and lag assumptions.

Figure 5.1 is an indication of the relative relationship between entrepreneurship and subsequent FTE figures for two set periods and provides strong evidence that communities that have higher percentages of entrepreneurs are rewarded by higher levels of job creation as the R-squared value is nearly .45. When this comparison is done for all the three-year SEWE averages and subsequent six-year FTE growth the R-squared value drops but still provides a positive relationship for entrepreneurship and subsequent FTE growth.

CHAPTER 6
DISCUSSION ON RESULTS AND THE VARIABLES USED

The Self-Employed individuals, not employed in agriculture, with employees (SEWE) participation percentage measured as a percentage of the labour force over 15 years old, provides a useful proxy for measuring entrepreneurship within a region. When the SEWE variable is utilized within the Audretsch et al. (2001) model, it provided inconsistent results. This inconsistency need not discourage its further use as either an explanatory or dependent variable as other measures of entrepreneurship (i.e. new firm formation) also have trouble with the unemployment rate – entrepreneurship relationship.

Chapter 5 suggested extraneous factors and lack of control as two reasons why to use relative measures of total and full-time employment over regional unemployment rates in explaining the entrepreneurship – job creation relationship. In addition to the previously cited problems with the unemployment rate (UE) rate variable, previous studies looked at the self-employment - unemployment relationship through the lens of underperforming regions or areas of high unemployment. The latter years of this study cover geographic regions which were experiencing an economic boom with extremely low unemployment levels and regional discussions on labour shortages. Increases in SEWE rates during this period must be discussed and studied in conjunction with the 'pull effect'. In addition, the work force for the various regions was not uniform in size or composition.

As discussed, regional UE are not a direct result or measure on the effectiveness of the SEWE rates as the self-employed may create jobs in a region but are not in control of the unemployment or labour force levels of a region. The mobility of labour within and to this relatively small

geographic region may require additional study. As shown by Table 4.1, the decrease in unemployment for the Saskatchewan economic regionas (ERs) was due more to population loss than employment gains, while Alberta lowered their unemployment levels against rising populations.

Within the Georgellis and Wall (2000) model charting the percentage change in SEWE versus the future UEs the SEWE variable performs admirably and consistently with their findings. When the SEWE variable was used as a dependent variable within the regression model designed from the Georgellis and Wall (2000) model for this thesis, three explanatory variables had similar signs for their coefficients although the p-value for the relative UE (.2715) and the relative UE squared (.2269) were high. The model found a negative correlation with population density. Although not originally expected this negative relationship with population density is consistent with other research and theoretical projections, Kuznets (1966), Acs et al. (1994). For economists who believe there is a fixed rate of entrepreneurs within a community or region (Schumpeter, 1934), the effects of a labour shortage which drives the wage up rapidly and repeatedly would acts as significant disincentive to entering self-employment under a utility optimization model. This effect would be further exaggerated in areas of higher population densities as more opportunities would be available and the transaction cost of moving to another job would be lower as moving is not required. Population density and labour shortages may also be tied to real wage levels, which was shown by Georgellis and Wall (2000) to have a negative relationship with self-employment.

The negative relationship of the public employment levels and SEWE requires further study as the magnitude of the coefficient was quite large in comparison to the other explanatory variables.

The SEWE variable, as studied, does not make allowances for various industry sectors (manufacturing or service), sizes of operations or type of sector (i.e. low or high tech). The Labour Force Survey has compiled data on employment within industry sectors for the ERs, which could be used to do more advanced and similar sector relevant relationship studies, including advancements on the Georgellis and Wall (2000) work.

The simplicity of the Audretsch et al. (2001) model calls into question the validity of the model to properly model the situation as many other variables are at play for individuals, regions and nations. As an example, the Georgellis and Wall (2000) model provided for four areas of concern: labour market conditions; labour force characteristics; industry composition; and, region-specific factors. Key to their work is the finding of region specific factors or entrepreneurship capital of a region as being important.

The development of the relative measure with rolling averages for the SEWE proves an effective tool in helping to understand which ERs are above and below averages. The relationship between the employment figures and this proxy measure for entrepreneurship seems tighter than entrepreneurship with unemployment rates.

To conclude, the SEWE participation percentage as measured as a percentage of the labour force over 15 years old provides a useful proxy for measuring entrepreneurship within a region. It appears the utilization of the unemployment rate for this time period and region is a more questionable variable decision than the SEWE participation percentage. The use of ERs within this study appears consistent with Acs and Armington's utilization of labour market areas for the United States, although maybe not truly representative of the labour force economic region or commutershed.

CHAPTER 7
CONCLUSIONS AND FUTURE STUDIES

This paper set out to find answers to three questions regarding entrepreneurship in Prairie Canada from 1987-2006: 1) is there an expected level of entrepreneurship for an economic region (ER); 2) are there regions which have consistently had higher entrepreneurship percentages; and, 3) have these regions been rewarded with higher levels of job creation?

As a measurement variable, Self-Employed individuals, not employed in agriculture, with employees (SEWE) provides an effective annual regional proxy for estimating entrepreneurship and whether a region is 'entrepreneurial' relative to another. There are great variations in the participation percentages (or rates) of SEWE across the economic regions of Prairie Canada through the years of 1987-2006. For the 20-year period studied, an expected level of SEWE as a percentage of the labour force population is 5.01%. For the same time period the average regional SEWE rates in each province was 4.79% in Manitoba, 4.67% in Saskatchewan and 5.42% in Alberta. Although this variation in percentages looks small, when placed in context of a community with a labour force of 10,000 individuals, the Alberta community would have 63 more entrepreneurs with employees than a similar sized community in Manitoba and 75 more than a comparable Saskatchewan community.

The simple statistical mean calculation of regional SEWE participation percentages is only one of several measures which positively address the second thesis question, whether there are regions which have consistently had higher entrepreneurship percentages. Again the answer is yes and the majority of these economic regions are within Alberta. This conclusion is further reinforced by five other analytical findings within this thesis.

The first additional measure is the SEWE growth index which was calculated by multiplying the absolute growth in SEWE within an ER over the 20 years with the percentage growth in SEWE in the same ER and time period. This calculation highlighted Alberta's dominance as an entrepreneurial power over the time period studied as the lowest Alberta index level of 262.1 for the Lethbridge – Medicine Hat ER was higher than all but one ER in Manitoba and Saskatchewan. The only Manitoba or Saskatchewan ER scoring higher than Lethbridge – Medicine Hat was Southeast Manitoba with an index score of 995.1. To gain further perspective, the Southeast Manitoba index score of 995.1 was lower than every other Alberta ER index score as the second lowest score in Alberta was 1,226 for Wood Buffalo – Cold Lake. Secondly, the provincial SEWE participation percentage averages also provide weight to this conclusion as the averages vary from 4.21 in Manitoba, 4.56 in Saskatchewan and 5.17 in Alberta. Third is the use of the relative SEWE percentage measures versus the annual averages as depicted in Figure 5.1 which provided visual evidence of Saskatchewan's perennial below average SEWE participation rates. The fourth piece of evidence is the use of relative measures shown within Table 5.1 that the number of years Manitoba's average SEWE participation percentage was above the annual regional average was zero, Saskatchewan only once and Alberta 16 times. The fifth area of measure reinforcing Alberta's placement on top is Table 5.3 which depicts the number of years an ER is above the rolling average SEWE participation percentage. Four of the seven ERs which sustained higher then average participation rates, measured against a six-year rolling average, were in Alberta, zero came from Saskatchewan and three from Manitoba.

Four measures within this paper provide evidence that ERs which have consistently had higher entrepreneurship percentages have been rewarded with higher job creation levels. The first measure is the total employment (TE) growth index shown in Table 4.3. This is calculated

by multiplying the absolute growth in TE within an ER during a 20 year period by with the percentage growth in TE in the same ER and time period. The lowest TE growth index score for an Alberta ER is higher than any ER outside of that province. Alberta's lowest indexed ER Camrose – Drumheller had an index score of 10,258 while the highest TE index score outside of Alberta was Winnipeg with a score of 8,562. Had a full-time employment (FTE) growth index been provided the result would have been similar to the TE growth index. The second measure showing Alberta's economic success is the level of employment growth above population growth within their ERs as shown in Table 4.6. Alberta's regions averaged an employment growth over population growth of 24.25% while Manitoba averaged 7.74% and Saskatchewan averaged 10.91% but four of Saskatchewan's five ERs received positive figures by having larger population percentage losses than employment growth losses. The fourth finding is the variation of the Audretsch et al. (2001) chart, Figure 4.2, which charts the changes in SEWE rates and unemployment rates (UEs) for the 20 ERs of Prairie Canada from 1987-2006. This chart shows a clustering of points in the lower right quadrant depicting growth in SEWE rates lowers subsequent UEs. The final measure is the chart from the new measure utilizing relative rates of SEWE and employment growth as shown in Figure 5.1 and Figure 5.2, which show a positive relationship for increases in the relative rate of self-employment (RRSE) versus the relative rate of full-time employment for the periods charted.

This new measurement variable, SEWE, provides no new information or advancement in understanding the entrepreneurship – unemployment rate relationship within regions for the regression models used. SEWE does prove compatible to the Georgellis and Wall (2000) relative rates model providing comparable results on direction signs although the unemployment variables have large p-values making the variable statistically insignificant.

This thesis began by stating it would attempt to relate three distinct economic theories, Schumpeter's role of the entrepreneur, Birch's work on small business and job creation and finally new growth theories which incorporate the entrepreneur within economic growth. It appears that entrepreneurship capital is a key component to economic development, especially within New Growth Theory and the entrepreneurship model.

The SEWE percentages, employment and population growth within Alberta depicted in Table 5.2 appear to support Audretsch et al. (2006), *Entrepreneurial Opportunity Proposition,* that entrepreneurship will be higher in regions with a greater amount of non-knowledge entrepreneurial opportunities, such as growth, especially unexpected growth. The poor economic performance of the northern Manitoba appears to supports the *Barriers to Entrepreneurship Proposition*.

A basis of the knowledge spillover theory of entrepreneurship is the Location Hypothesis, which states that knowledge spillover entrepreneurship will tend to be spatially located within close proximity to the source of knowledge actually producing the knowledge. Interestingly, Calgary is the only ER, which contains a university science and technology program, which would appear to be geared toward knowledge spillover; that has a SEWE percentage above the average, at 5.38%. The other ERs, with similar programs, have below average SEWE participation percentages Edmonton (4.66%), Saskatoon (4.54%), Regina (4.03%) and Winnipeg (3.68).This may defy the Endogenous Entrepreneurship Hypothesis which states entrepreneurship will be greater in the presence of higher investment in knowledge. It may be that the knowledge filter in these communities is too dense or the universities are not producing economic knowledge.

This finding would lend support to Acs et al. (1994) who stated, 'the tendency for the self-employment rate to decline with economic development has long been recognized.' This finding would also assume a negative relationship between population density and SEWE rates, which was found in the variation of the Georgellis and Wall (2000) regression.

As for the SEWE variable, future work with the variable should include utilizing it within previous studies which used firm formation numbers as the entrepreneurship proxy to check SEWE's reliability in other models. Further work could be done to advance the Georgellis and Wall (2000) model within the geographic area of study by utilizing the Labour Force Survey data on industry employment for each of the ERs.

Throughout this paper arguments have been presented to evaluate Schmitz's (1989) theoretical endogenous growth model, which predicted that an increase in the proportion of entrepreneurs in the work force leads to an increase in long-run growth. In answering the question does 'a relationship exist between the extent to which a geographical area is 'entrepreneurial' and the extent to which it is 'economically successful'? The findings reviewed are inconclusive. Certain estimates support the theory that economies with higher proportions of entrepreneurs will grow persistently faster than economies with a smaller portion. The findings also demonstrate that a higher proportion of entrepreneurs is not a guarantee of long-run growth.

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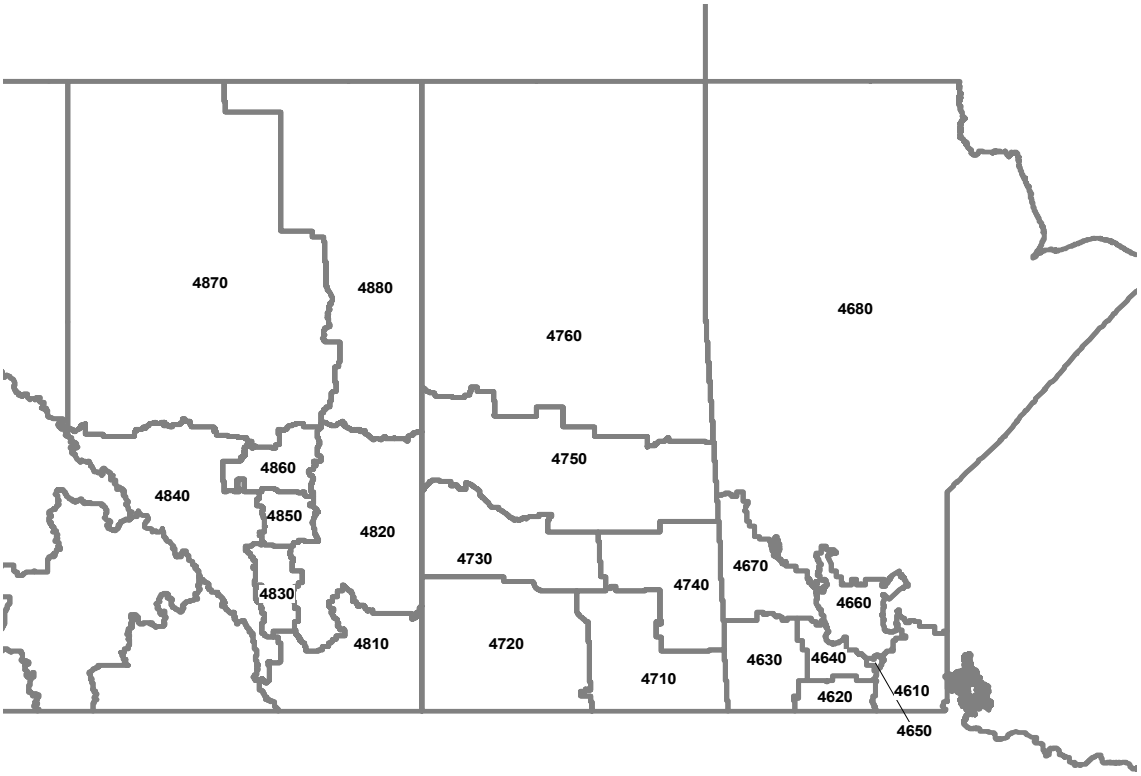
APPENDIX A
MAPS AND DATA



The Economic Regions (ER) of Prairie Canada

Manitoba	4810 – Southeast
	4820 – South Central
	4830 – Southwest
	4840 – North Central
	4850 – Winnipeg
	4860 – Interlake
	4870+4880 – Parklands and Northern
Saskatchewan	4710 – Regina – Moose Mountain
	4720 – Swift Current – Moose Jaw
	4730 – Saskatoon – Biggar
	4740 – Yorkton – Melville
	4750+4760 – Prince Albert and North
Alberta	4810 – Lethbridge – Medicine Hat
	4820 – Camrose – Drumheller
	4830 – Calgary
	4840 – Banff – Jasper – Rocky Mountain House
	4850 – Red Deer
	4860 – Edmonton
	4870 – Athabasca – Grande Prairie – Peace River
	4880 – Wood Buffalo – Cold Lake

Province	Economic Regions	Description	Census Divisions Included						
Manitoba	4610	Southeast	4601	4602	4612				
	4620	South Central	4603	4604					
	4630	Southwest	4605	4606	4607	4615			
	4640	North Central	4608	4609	4610				
	4650	Winnipeg	4611						
	4660	Interlake	4613	4614	4618				
	4670 & 4680 combined	Parklands & North	4616	4617	4619	4620	4621	4622	4623
		Winnipeg CMA							
Saskatchewan	4710	Regina - Moose Mountain	4701	4702	4706				
	4720	Swift Current - Moose Jaw	4703	4704	4707	4708			
	4730	Saskatoon - Biggar	4711	4712	4713				
	4740	Yorkton - Melville	4705	4709	4710				
	4750 & 4760 combined	Prince Albert & Northern	4714	4715	4716	4717	4718		
		Regina CMA							
		Saskatoon CMA							
Alberta	4810	Lethbridge - Medicine Hat	4801	4802	4803				
	4820	Camrose - Drumheller	4804	4805	4807	4810			
	4830	Calgary	4806						
	4840	Banff - Jasper - Rocky Mountain House	4809	4814	4815				
	4850	Red Deer	4808						
	4860	Edmonton	4811						
	4870	Athabasca - Grande Prairie - Peace River	4813	4817	4818	4819			
	4880	Wood Buffalo - Cold Lake	4812	4816					

Self-Employed with employees excluding ag																						
Indicator/Geography	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	Growth	% Growth
Manitoba	25.1	26.6	24.2	23.4	23.4	22.9	22.8	22.5	22.3	24.9	25.0	23.3	23.7	25.2	24.3	24.5	25.8	23.2	25.3	22.5	-2.6	-10.36%
4610 - Southeast	1.7	2.4	1.9	1.7	2.1	3.0	2.0	2.6	1.8	2.5	1.8	1.9	2.5	2.8	2.8	2.1	2.8	2.9	3.1	3.0	1.3	76.47%
4620 - South Central	1.1	1.5	1.3	1.2	1.1	1.1	1.4	1.4	0.9	1.3	1.3	1.3	1.3	1.2	1.2	0.9	2.1	1.8	1.5	1.4	0.3	27.27%
4630 - Southwest	3.1	2.7	2.7	2.7	2.8	2.2	2.1	2.4	3.1	3.4	2.7	2.5	2.8	2.6	2.5	2.8	2.3	2.1	2.6	2.2	-0.9	-29.03%
4640 - North Central	1.3	1.0	0.9	0.9	0.6	0.8	0.8	0.8	0.6	1.1	0.7	1.2	0.9	1.1	1.0	1.2	1.3	0.9	1.1	0.9	-0.4	-30.77%
4650 - Winnipeg	13.7	14.9	13.9	12.5	13.0	11.5	12.0	10.7	11.7	12.1	13.9	12.5	11.3	13.0	13.3	13.4	13.4	11.9	12.0	11.1	-2.6	-18.98%
4660 - Interlake	2.3	1.8	1.8	2.2	2.1	2.3	2.4	3.2	2.0	2.5	2.3	2.3	3.0	2.8	2.0	2.7	2.4	2.0	2.6	2.5	0.2	8.70%
4670 & 4680 - Parklands & North	1.8	2.2	1.7	2.3	1.6	2.1	2.0	1.4	2.2	2.0	2.2	1.5	1.9	1.8	1.6	1.5	1.6	1.6	2.4	1.5	-0.3	-16.67%
Saskatchewan	22.1	21.8	22.0	21.3	24.2	21.7	22.2	22.7	22.4	23.8	21.6	22.4	23.2	23.4	22.3	23.1	22.7	22.7	23.2	23.8	1.7	7.69%
4710 - Regina - Moose Mountain	6.2	4.7	5.0	5.7	6.5	5.4	6.5	5.4	5.3	6.8	5.5	5.8	6.6	6.2	6.5	6.4	6.1	5.7	6.9	6.7	0.5	8.06%
4720 - Swift Current - Moose Jaw	2.3	2.3	2.5	2.2	2.6	2.6	2.1	2.7	2.4	2.7	2.1	2.5	2.7	2.6	2.8	2.6	2.5	2.6	2.3	2.8	0.5	21.74%
4730 - Saskatoon - Biggar	6.6	7.1	6.2	5.8	6.7	5.9	5.8	6.7	7.2	6.5	7.3	7.5	7.2	6.9	6.6	6.5	7.2	7.2	7.1	7.5	0.9	13.64%
4740 - Yorkton - Melville	2.3	2.6	2.5	1.9	2.4	2.2	2.4	2.1	2.2	2.5	1.9	2.3	2.4	2.4	1.9	2.7	2.3	2.4	1.9	1.6	-0.7	-30.43%
4750 & 4760 - PA & Northern	4.7	5.2	5.8	5.6	6.1	5.6	5.3	5.9	5.3	5.4	4.8	4.3	4.3	5.4	4.6	4.9	4.7	4.8	5.0	5.2	0.5	10.64%
Alberta	58.9	68.6	71.2	67.8	69.9	74.0	75.0	75.1	89.8	85.6	83.1	81.5	83.8	85.6	83.9	83.9	87.7	92.7	102.7	103.1	44.2	75.04%
4810 - Lethbridge - Medicine Hat	5.5	6.2	5.8	4.2	4.7	5.6	5.0	6.6	9.0	7.5	7.7	6.8	6.8	7.7	5.9	6.2	5.6	7.7	8.7	6.7	1.2	21.82%
4820 - Camrose - Drumheller	3.5	3.7	4.1	5.4	4.6	4.8	4.1	5.3	7.0	5.2	5.1	4.9	5.3	7.1	5.9	8.0	6.8	6.2	7.8	7.3	3.8	108.57%
4830 - Calgary	17.7	22.1	24.0	24.5	26.0	26.8	31.0	29.4	31.8	27.5	29.0	31.5	29.0	31.6	28.4	29.3	32.4	33.9	37.6	36.7	19.0	107.34%
4840 - Banff - Jasper - RkyMtnH	1.6	2.2	3.1	2.3	2.3	2.6	2.5	2.5	3.2	3.7	2.5	2.3	3.9	3.3	4.3	3.8	3.2	3.8	4.0	4.1	2.5	156.25%
4850 - Red Deer	4.3	4.0	4.0	4.3	3.7	3.2	3.5	2.7	4.6	5.4	3.1	3.6	4.6	4.1	3.1	4.4	4.7	4.3	5.4	7.3	3.0	69.77%
4860 - Edmonton	19.6	23.5	23.5	20.4	22.4	24.4	21.5	21.9	26.0	26.6	24.9	23.2	27.0	23.1	28.2	23.5	25.4	27.2	26.7	29.0	9.4	47.96%
4870 - Athabasca - GrdPr - PcRvr	5.1	5.8	5.4	5.4	5.3	3.9	5.2	5.5	6.6	7.7	8.6	7.6	5.2	6.1	6.0	6.3	6.8	6.9	9.1	9.0	3.9	76.47%
4880 - Wood Buffalo - Cold Lake*	1.6	1.5	1.5	1.5	1.5	2.7	2.1	1.5	1.6	2.0	2.3	1.6	2.0	2.5	2.0	2.3	2.9	2.6	3.3	3.0	1.4	87.50%
* data unavailable for 1988, 1989, 1990, 1991, 1994																						

Special data run from Statistics Canada

Labour Force, 15 & Older																						
Geography	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	Growth	% Growth
Manitoba	545.9	548.7	554.1	554.6	554.5	551.0	555.6	556.3	556.9	558.0	562.1	565.8	573.7	581.1	583.7	597.8	600.3	608.9	609.4	613.5	67.6	12.38%
4610 - Southeast	38.0	38.4	39.8	41.8	40.6	40.4	42.3	41.5	41.2	42.3	42.9	43.1	46.3	46.8	45.7	48.0	50.8	51.5	53.8	53.0	15.0	39.47%
4620 - South Central	23.9	24.0	24.5	23.5	23.6	22.6	22.8	23.8	24.1	24.2	25.3	24.8	25.1	26.4	25.1	26.4	26.8	28.7	28.9	27.6	3.7	15.48%
4630 - Southwest	55.2	53.4	52.2	51.0	50.8	52.0	52.6	50.9	52.9	54.8	53.9	51.9	52.4	53.2	52.8	52.0	54.3	54.1	51.4	53.4	-1.8	-3.26%
4640 - North Central	19.9	21.1	20.7	21.2	20.7	20.3	21.3	22.4	21.8	21.7	21.1	21.6	22.9	22.0	22.0	24.2	24.0	22.1	23.4	22.9	3.0	15.08%
4650 - Winnipeg	327.2	329.7	334.5	331.9	334.2	330.5	333.2	330.8	333.9	332.0	331.5	336.8	340.7	346.5	353.9	362.5	359.5	367.5	362.8	368.8	41.6	12.71%
4660 - Interlake	36.0	36.8	36.5	37.9	38.3	39.6	38.2	40.5	39.7	39.3	41.5	43.1	43.1	44.5	42.5	43.8	44.1	45.3	46.7	46.5	10.5	29.17%
4670 & 4680 - Parklands & North	45.6	45.3	45.8	47.3	46.5	45.6	45.2	46.3	43.2	43.7	45.9	44.5	43.2	41.7	41.7	40.8	40.8	39.8	42.5	41.2	-4.4	-9.65%
Saskatchewan	498.5	499.5	492.6	488.6	489.3	486.8	489.1	488.0	491.1	489.6	495.7	499.5	501.9	499.2	488.5	496.4	504.3	506.7	509.4	515.6	17.1	3.43%
4710 - Regina - Moose Mountain	146.2	146.0	146.3	146.0	146.8	144.5	147.0	146.9	146.7	146.4	147.3	150.9	149.5	148.5	149.5	152.1	153.0	154.6	154.3	154.1	7.9	5.40%
4720 - Swift Current - Moose Jaw	60.2	60.7	57.4	58.2	56.3	54.0	56.5	55.6	57.3	56.1	55.8	56.1	55.0	55.2	53.7	52.7	55.2	53.0	54.8	57.1	-3.1	-5.15%
4730 - Saskatoon - Biggar	142.6	143.6	143.6	142.3	142.4	143.1	141.4	141.6	144.6	146.9	148.8	151.1	151.7	152.5	150.4	155.3	159.4	159.5	161.4	163.2	20.6	14.45%
4740 - Yorkton - Melville	48.4	49.7	48.4	45.5	45.5	45.9	45.9	45.9	44.5	43.6	44.4	42.6	42.6	43.6	38.7	41.2	39.3	41.5	42.0	42.3	-6.1	-12.60%
4750 & 4760 - PA & Northern	101.0	99.5	96.9	96.7	98.4	99.3	98.4	97.9	98.0	96.5	99.4	98.8	103.1	99.5	96.1	95.1	97.4	98.1	96.9	98.8	-2.2	-2.18%
Alberta	1,313.8	1,328.9	1,348.0	1,370.9	1,399.3	1,413.9	1,425.9	1,452.2	1,480.8	1,509.4	1,542.6	1,599.6	1,637.7	1,666.8	1,710.3	1,764.2	1,808.8	1,842.4	1,857.5	1,937.5	623.7	47.47%
4810 - Lethbridge - Medicine Hat	100.8	104.6	106.6	103.5	106.7	108.7	111.4	117.2	117.4	117.6	116.4	120.8	126.4	123.9	125.5	126.6	132.7	135.6	143.1	141.8	41.0	40.67%
4820 - Camrose - Drumheller	84.5	86.7	85.0	86.5	90.0	89.4	92.4	94.6	92.6	94.8	92.3	96.1	98.6	95.5	95.4	99.6	103.0	104.0	104.6	110.2	25.7	30.41%
4830 - Calgary	427.6	436.0	445.5	451.6	459.4	463.3	469.5	476.0	493.8	515.4	532.0	562.6	583.2	605.9	629.0	647.7	660.0	676.3	678.3	728.5	300.9	70.37%
4840 - Banff - Jasper - RkyMtnH	34.3	33.5	34.6	37.4	39.8	40.8	41.9	42.8	43.6	46.2	46.5	47.5	49.6	47.4	47.6	48.7	45.4	46.7	50.0	50.9	16.6	48.40%
4850 - Red Deer	66.5	66.8	65.3	69.4	68.0	69.1	69.0	71.6	74.2	74.6	77.1	84.1	83.0	85.7	87.2	89.9	93.9	93.0	96.8	101.5	35.0	52.63%
4860 - Edmonton	467.9	467.9	471.7	476.5	487.9	495.5	490.2	496.8	502.4	497.8	517.8	525.0	531.4	539.3	554.3	572.1	589.2	603.5	593.9	605.6	137.7	29.43%
4870 - Athabasca - GrdPr - PcRvr	90.5	91.5	94.8	99.7	100.8	99.7	103.7	108.2	112.8	115.3	110.8	114.4	115.1	115.8	116.1	119.1	121.7	121.7	129.1	133.5	43.0	47.51%
4880 - Wood Buffalo - Cold Lake	41.7	41.8	44.6	46.3	46.7	47.4	47.9	44.8	44.1	47.8	49.6	48.9	50.4	53.3	55.2	60.5	63.1	61.7	61.7	65.5	23.8	57.07%

Total Employment																						
Geography	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	Growth	% Growth
Manitoba	505.2	506.3	512.7	513.8	506.8	499.9	503.8	507.7	516.5	517.4	525.6	534.2	541.4	552.3	554.3	567.2	570.3	576.6	580.3	587.0	81.8	16.19%
4610 - Southeast	35.9	35.9	37.5	39.3	37.8	37.1	38.8	38.8	38.2	39.7	40.6	40.8	43.8	44.7	43.6	45.6	48.6	49.0	51.2	50.9	15.0	41.78%
4620 - South Central	22.7	22.6	23.0	22.4	22.4	21.4	21.9	23.0	23.1	23.4	24.5	24.1	24.4	25.5	24.0	25.5	25.8	27.8	28.1	26.9	4.2	18.50%
4630 - Southwest	51.8	50.0	49.0	48.0	47.4	49.2	49.7	48.1	50.1	51.9	51.2	49.5	50.1	51.2	50.9	49.9	52.2	51.7	48.8	51.2	-0.6	-1.16%
4640 - North Central	18.4	19.8	19.4	20.0	19.5	19.0	20.1	21.4	20.7	20.7	20.1	20.7	21.8	21.2	21.3	23.4	23.1	21.0	22.4	22.3	3.9	21.20%
4650 - Winnipeg	300.5	302.3	308.0	305.0	301.2	294.4	296.2	295.6	307.2	304.2	307.1	317.0	320.6	327.8	335.0	343.0	340.3	346.8	344.7	351.2	50.7	16.87%
4660 - Interlake	34.1	34.2	34.0	35.5	35.4	37.1	35.4	37.9	36.6	36.5	38.9	40.3	40.8	42.6	40.2	41.5	41.9	43.2	44.4	45.2	11.1	32.55%
4670 & 4680 - Parklands & North	41.9	41.5	41.8	43.6	43.0	41.8	41.6	42.8	40.5	41.0	43.2	41.8	39.9	39.2	39.4	38.2	38.2	37.1	40.8	39.3	-2.6	-6.21%
Saskatchewan	461.9	462.8	456.4	454.2	453.3	448.0	448.5	454.5	458.0	456.8	466.2	470.5	471.6	473.5	460.3	468.3	476.1	479.7	483.5	491.6	29.7	6.43%
4710 - Regina - Moose Mountain	136.8	136.5	136.3	137.0	138.2	134.3	135.6	138.0	137.2	138.1	139.3	143.1	141.2	141.4	141.9	144.2	144.8	147.3	147.4	147.4	10.6	7.75%
4720 - Swift Current - Moose Jaw	57.0	57.7	54.3	55.4	52.9	50.3	52.0	52.5	54.5	53.1	53.5	53.9	52.4	53.3	51.5	50.4	52.4	50.3	52.2	54.5	-2.5	-4.39%
4730 - Saskatoon - Biggar	130.7	131.8	131.9	130.5	129.2	129.9	128.8	130.4	134.4	136.3	139.5	141.7	142.8	144.8	141.6	146.5	150.5	150.3	153.5	156.2	25.5	19.51%
4740 - Yorkton - Melville	45.7	46.8	45.9	42.9	43.1	43.9	43.2	43.7	41.8	41.5	41.9	40.6	40.3	41.3	36.4	39.0	37.3	39.6	39.9	40.6	-5.1	-11.16%
4750 & 4760 - PA & Northern	91.6	90.0	88.0	88.4	90.0	89.7	89.0	89.8	90.1	87.9	92.0	91.2	94.8	92.7	88.9	88.2	91.1	92.1	90.4	92.9	1.3	1.42%
Alberta	1,187.7	1,222.3	1,251.3	1,276.8	1,284.4	1,280.0	1,288.7	1,324.5	1,364.9	1,405.1	1,451.4	1,509.9	1,544.0	1,584.0	1,630.9	1,670.8	1,716.7	1,757.5	1,784.4	1,870.7	683.0	57.51%
4810 - Lethbridge - Medicine Hat	92.4	97.1	100.5	96.9	100.0	100.7	102.5	108.4	109.6	110.3	108.8	115.1	120.6	117.9	120.3	120.1	126.9	130.4	137.5	137.5	45.1	48.81%
4820 - Camrose - Drumheller	78.7	82.2	80.9	82.5	85.0	84.9	87.6	89.8	87.5	90.9	88.6	90.9	93.5	91.6	92.1	95.8	98.9	100.3	101.3	107.1	28.4	36.09%
4830 - Calgary	389.8	402.7	415.2	421.2	420.9	417.9	422.0	432.3	454.0	480.7	500.7	533.8	550.7	578.2	600.2	611.4	624.7	642.8	651.6	705.0	315.2	80.86%
4840 - Banff - Jasper - RkyMtnH	31.0	30.9	32.0	34.8	37.4	37.8	38.6	40.6	41.7	44.1	44.3	44.7	47.5	45.2	45.9	46.1	43.1	45.2	48.6	49.6	18.6	60.00%
4850 - Red Deer	60.3	61.8	60.5	65.1	62.0	61.9	63.3	66.0	67.9	69.2	73.5	80.2	77.7	81.1	82.9	85.1	88.7	88.9	93.6	97.6	37.3	61.86%
4860 - Edmonton	417.2	426.5	433.5	440.6	443.2	442.6	436.2	444.3	458.1	457.3	482.9	492.8	500.2	509.6	526.4	542.1	559.8	574.8	567.2	582.3	165.1	39.57%
4870 - Athabasca - GrdPr - PcRvr	81.7	83.5	88.0	93.3	93.5	91.6	96.0	102.9	106.3	108.8	106.1	107.7	106.9	109.3	110.4	112.4	114.7	115.7	125.1	129.0	47.3	57.89%
4880 - Wood Buffalo - Cold Lake	36.6	37.6	40.7	42.5	42.4	42.6	42.6	40.3	39.8	43.7	46.6	44.7	46.8	50.9	52.7	57.7	59.8	59.3	59.4	62.6	26.0	71.04%

Full time employment																						
Geography	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	Growth	% Growth
Manitoba	409.1	408.5	413.3	409.8	395.8	388.6	392.4	399.7	408.8	408.2	419.3	430.4	435.2	447.9	447.8	454.2	458.3	465.6	466.5	471.2	62.1	15.18%
4610 - Southeast	28.2	28.4	29.7	30.2	29.2	28.5	29.9	30.4	30.0	29.5	32.4	32.3	34.6	35.4	34.2	35.7	38.9	39.0	40.7	41.4	13.2	46.81%
4620 - South Central	17.2	16.6	17.1	16.4	16.2	15.3	16.0	16.9	17.7	18.0	18.8	19.4	19.8	20.4	19.1	20.0	19.4	21.0	21.5	21.1	3.9	22.67%
4630 - Southwest	39.0	38.6	37.5	35.1	34.8	35.1	35.4	35.4	36.1	38.6	38.2	36.3	37.6	38.9	40.5	39.3	41.2	41.4	37.6	40.4	1.4	3.59%
4640 - North Central	15.0	15.7	15.2	15.8	14.9	14.6	15.7	16.6	16.6	16.2	16.3	16.6	17.6	16.9	17.3	18.1	18.8	17.1	17.7	18.6	3.6	24.00%
4650 - Winnipeg	247.8	249.0	253.3	248.6	238.8	232.7	234.5	236.3	246.1	243.7	247.8	259.3	261.2	270.2	272.3	276.7	274.7	282.6	279.2	281.6	33.8	13.64%
4660 - Interlake	28.0	27.3	27.6	28.7	27.8	29.1	28.0	30.2	29.3	29.2	31.5	32.3	32.5	34.0	32.2	33.3	34.3	34.2	36.1	36.1	8.1	28.93%
4670 & 4680 - Parklands & North	33.9	32.9	32.9	35.0	34.0	33.3	33.0	33.8	33.0	32.8	34.4	34.2	32.0	32.2	32.3	31.1	30.9	30.4	33.5	31.9	-2.0	-5.90%
Saskatchewan	363.0	361.6	357.4	353.1	349.1	342.9	343.2	354.1	355.7	359.4	369.0	375.9	375.3	380.7	371.1	373.4	380.2	386.1	389.7	400.1	37.1	10.22%
4710 - Regina - Moose Mountain	109.7	110.2	109.3	108.4	108.5	105.7	106.0	110.1	107.2	110.1	111.7	116.7	113.6	115.1	115.8	115.7	117.3	121.7	119.0	122.1	12.4	11.30%
4720 - Swift Current - Moose Jaw	42.7	43.1	40.5	42.6	40.5	37.9	38.1	39.3	41.2	40.9	41.3	41.8	41.2	42.5	41.2	40.4	41.5	40.2	42.9	43.5	0.8	1.87%
4730 - Saskatoon - Biggar	103.2	103.0	105.3	101.4	98.4	98.4	99.1	101.3	105.6	107.5	111.4	112.4	113.0	116.6	113.3	115.8	119.0	117.2	123.7	126.6	23.4	22.67%
4740 - Yorkton - Melville	33.8	34.6	33.8	32.6	32.9	32.6	32.1	33.0	31.1	30.6	32.1	32.9	31.7	32.1	29.5	30.4	29.6	31.5	32.1	31.9	-1.9	-5.62%
4750 & 4760 - PA & Northern	73.5	70.7	68.5	68.0	68.7	68.3	67.8	70.4	70.7	70.3	72.5	72.1	75.8	74.4	71.3	71.1	72.9	75.5	71.9	76.0	2.5	3.40%
Alberta	980.0	1,010.3	1,034.4	1,059.4	1,061.0	1,041.8	1,038.1	1,067.0	1,100.7	1,140.0	1,180.4	1,223.1	1,248.4	1,292.3	1,338.1	1,373.9	1,407.6	1,440.2	1,477.6	1,570.1	590.1	60.21%
4810 - Lethbridge - Medicine Hat	74.9	78.8	81.0	77.5	79.9	79.9	77.1	83.4	82.3	85.2	83.7	87.3	93.9	90.7	94.4	92.0	101.7	104.8	113.2	112.5	37.6	50.20%
4820 - Camrose - Drumheller	62.1	64.8	63.3	63.9	66.7	66.3	69.0	67.9	67.0	69.4	69.0	70.0	73.1	71.7	72.2	76.4	79.3	79.6	82.0	86.4	24.3	39.13%
4830 - Calgary	324.7	336.0	347.4	354.0	351.3	341.8	345.2	352.0	370.2	397.6	415.0	444.8	455.3	483.6	504.6	511.7	516.6	526.9	546.0	601.2	276.5	85.16%
4840 - Banff - Jasper - RkyMtnH	25.9	26.3	28.0	30.0	31.6	31.8	32.7	34.1	35.4	36.9	36.5	37.2	39.7	37.0	37.4	37.1	35.1	36.2	40.4	41.9	16.0	61.78%
4850 - Red Deer	46.2	48.5	48.4	52.1	48.6	48.9	49.1	50.1	51.8	53.7	57.3	62.2	60.6	66.6	67.3	67.8	70.9	72.9	74.9	81.6	35.4	76.62%
4860 - Edmonton	347.3	354.3	359.4	369.2	369.8	361.9	349.4	363.5	373.0	370.3	392.5	398.4	400.0	410.8	426.3	447.9	457.5	473.1	464.1	483.0	135.7	39.07%
4870 - Athabasca - GrdPr - PcRvr	67.7	68.9	72.7	76.6	76.7	75.6	78.9	83.9	88.4	90.8	88.1	87.1	86.9	89.1	90.8	92.3	95.0	95.8	105.4	109.1	41.4	61.15%
4880 - Wood Buffalo - Cold Lake	31.2	32.8	34.2	36.1	36.3	35.6	36.8	32.0	32.6	36.2	38.3	36.1	38.9	42.9	45.1	48.7	51.4	50.9	51.8	54.4	23.2	74.36%

Unemployemt Rate ((LF-Emp)/LF)																				
Indicator/Geography	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
4610 - Southeast	5.5%	6.5%	5.8%	6.0%	6.9%	8.2%	8.3%	6.5%	7.3%	6.1%	5.4%	5.3%	5.4%	4.5%	4.6%	5.0%	4.3%	4.9%	4.8%	4.0%
4620 - South Central	5.0%	5.8%	6.1%	4.7%	5.1%	5.3%	3.9%	3.4%	4.1%	3.3%	3.2%	2.8%	2.8%	3.4%	4.4%	3.4%	3.7%	3.1%	2.8%	2.5%
4630 - Southwest	6.2%	6.4%	6.1%	5.9%	6.7%	5.4%	5.5%	5.5%	5.3%	5.3%	5.0%	4.6%	4.4%	3.8%	3.6%	4.0%	3.9%	4.4%	5.1%	4.1%
4640 - North Central	7.5%	6.2%	6.3%	5.7%	5.8%	6.4%	5.6%	4.5%	5.0%	4.6%	4.7%	4.2%	4.8%	3.6%	3.2%	3.3%	3.7%	5.0%	4.3%	2.6%
4650 - Winnipeg	8.2%	8.3%	7.9%	8.1%	9.9%	10.9%	11.1%	10.6%	8.0%	8.4%	7.4%	5.9%	5.9%	5.4%	5.3%	5.4%	5.3%	5.6%	5.0%	4.8%
4660 - Interlake	5.3%	7.1%	6.8%	6.3%	7.6%	6.3%	7.3%	6.4%	7.8%	7.1%	6.3%	6.5%	5.3%	4.3%	5.4%	5.3%	5.0%	4.6%	4.9%	2.8%
4670 & 4680 - Parklands & North	8.1%	8.4%	8.7%	7.8%	7.5%	8.3%	8.0%	7.6%	6.3%	6.2%	5.9%	6.1%	7.6%	6.0%	5.5%	6.4%	6.4%	6.8%	4.0%	4.6%
4710 - Regina - Moose Mountain	6.4%	6.5%	6.8%	6.2%	5.9%	7.1%	7.8%	6.1%	6.5%	5.7%	5.4%	5.2%	5.6%	4.8%	5.1%	5.2%	5.4%	4.7%	4.5%	4.3%
4720 - Swift Current - Moose Jaw	5.3%	4.9%	5.4%	4.8%	6.0%	6.9%	8.0%	5.6%	4.9%	5.3%	4.1%	3.9%	4.7%	3.4%	4.1%	4.4%	5.1%	5.1%	4.7%	4.6%
4730 - Saskatoon - Biggar	8.3%	8.2%	8.1%	8.3%	9.3%	9.2%	8.9%	7.9%	7.1%	7.2%	6.3%	6.2%	5.9%	5.0%	5.9%	5.7%	5.6%	5.8%	4.9%	4.3%
4740 - Yorkton - Melville	5.6%	5.8%	5.2%	5.7%	5.3%	4.4%	5.9%	4.8%	6.1%	4.8%	5.6%	4.7%	5.4%	5.3%	5.9%	5.3%	5.1%	4.6%	5.0%	4.0%
4750 & 4760 - PA & Northern	9.3%	9.5%	9.2%	8.6%	8.5%	9.7%	9.6%	8.3%	8.1%	8.9%	7.4%	7.7%	8.1%	6.8%	7.5%	7.3%	6.5%	6.1%	6.7%	6.0%
4810 - Lethbridge - Medicine Hat	8.3%	7.2%	5.7%	6.4%	6.3%	7.4%	8.0%	7.5%	6.6%	6.2%	6.5%	4.7%	4.6%	4.8%	4.1%	5.1%	4.4%	3.8%	3.9%	3.0%
4820 - Camrose - Drumheller	6.9%	5.2%	4.8%	4.6%	5.6%	5.0%	5.2%	5.1%	5.5%	4.1%	4.0%	5.4%	5.2%	4.1%	3.5%	3.8%	4.0%	3.6%	3.2%	2.8%
4830 - Calgary	8.8%	7.6%	6.8%	6.7%	8.4%	9.8%	10.1%	9.2%	8.1%	6.7%	5.9%	5.1%	5.6%	4.6%	4.6%	5.6%	5.3%	5.0%	3.9%	3.2%
4840 - Banff - Jasper - RkyMtnH	9.6%	7.8%	7.5%	7.0%	6.0%	7.4%	7.9%	5.1%	4.4%	4.5%	4.7%	5.9%	4.2%	4.6%	3.6%	5.3%	5.1%	3.2%	2.8%	2.6%
4850 - Red Deer	9.3%	7.5%	7.4%	6.2%	8.8%	10.4%	8.3%	7.8%	8.5%	7.2%	4.7%	4.6%	6.4%	5.4%	4.9%	5.3%	5.5%	4.4%	3.3%	3.8%
4860 - Edmonton	10.8%	8.8%	8.1%	7.5%	9.2%	10.7%	11.0%	10.6%	8.8%	8.1%	6.7%	6.1%	5.9%	5.5%	5.0%	5.2%	5.0%	4.8%	4.5%	3.8%
4870 - Athabasca - GrdPr - PcRvr	9.7%	8.7%	7.2%	6.4%	7.2%	8.1%	7.4%	4.9%	5.8%	5.6%	4.2%	5.9%	7.1%	5.6%	4.9%	5.6%	5.8%	4.9%	3.1%	3.4%
4880 - Wood Buffalo - Cold Lake	12.2%	10.0%	8.7%	8.2%	9.2%	10.1%	11.1%	10.0%	9.8%	8.6%	6.0%	8.6%	7.1%	4.5%	4.5%	4.6%	5.2%	3.9%	3.7%	4.4%

Populations of Economic Regions 1987-2006

Source - Statistics Canada - Table 051-0038 - Estimates of population, by economic region, sex and age group for July 1st, 2001 Census boundaries, annual (persons)(Notes 1,2,3,4,5,6,7)

(In thousands)

	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	Growth	% Growth
Manitoba	1098.0	1102.0	1103.6	1105.7	1109.6	1112.7	1117.6	1123.2	1129.1	1134.2	1136.1	1137.5	1142.5	1147.4	1151.3	1155.6	1161.9	1170.5	1174.1	1177.8	79.7	7.26%
4610 - Southeast	75.4	76.8	77.7	78.3	79.5	80.4	81.3	82.5	83.5	84.5	85.6	86.1	87.1	88.1	89.1	90.4	91.9	93.8	95.4	97.2	21.8	28.85%
4620 - South Central	50.8	50.8	50.5	50.2	50.0	50.2	50.4	50.8	51.4	51.9	52.1	52.3	52.5	53.0	53.7	54.1	54.7	55.4	56.2	57.1	6.3	12.51%
4630 - Southwest	110.4	109.7	108.7	106.7	105.7	105.3	106.0	106.6	106.7	106.8	106.6	106.4	106.6	106.3	105.8	105.3	105.4	105.8	105.9	106.0	-4.5	-4.03%
4640 - North Central	46.9	46.9	46.7	46.9	47.0	46.9	46.7	46.7	47.3	47.9	48.1	48.4	48.8	48.9	48.8	48.9	49.3	49.8	49.4	49.0	2.1	4.49%
4650 - Winnipeg	613.5	616.8	618.8	622.7	626.8	629.0	631.1	631.7	631.7	631.0	629.9	630.1	632.5	635.9	638.9	641.8	644.9	649.1	650.2	651.3	37.9	6.17%
4660 - Interlake	72.0	73.2	74.1	75.0	75.6	75.6	75.9	77.4	79.1	80.2	81.1	82.1	83.2	84.0	84.6	85.1	85.9	86.7	87.5	88.3	16.3	22.69%
4670 & 680 - Parklands & North	129.2	127.7	127.0	125.9	125.1	125.4	126.1	127.6	129.5	132.0	132.6	132.1	131.8	131.2	130.3	130.1	129.8	129.9	129.5	129.0	-0.2	-0.15%
Saskatchewan	1032.7	1028.0	1019.2	1007.1	1002.7	1004.0	1006.9	1009.5	1014.1	1019.1	1018.1	1017.5	1014.7	1007.8	1000.1	995.9	994.7	994.9	990.0	985.4	-47.4	-4.59%
4710 - Regina - Moose Mountain	282.1	282.4	280.6	278.9	278.9	279.7	280.8	281.7	282.8	283.8	282.8	282.1	281.3	279.2	276.8	275.6	276.0	276.1	275.4	274.8	-7.3	-2.59%
4720 - Swift Current - Moose Jaw	124.3	122.4	120.2	117.3	115.3	115.0	114.4	113.5	113.1	112.8	112.0	111.1	109.9	108.2	106.4	105.0	104.4	103.7	102.2	100.7	-23.6	-18.97%
4730 - Saskatoon - Biggar	281.1	281.4	280.7	278.8	278.7	280.3	281.9	283.6	286.4	289.4	290.7	292.1	292.7	291.8	291.4	291.6	291.7	293.0	292.8	292.6	11.5	4.09%
4740 - Yorkton - Melville	108.9	107.2	104.9	102.8	101.7	100.5	100.1	99.0	98.0	97.0	95.8	94.9	93.7	92.3	90.6	89.5	88.3	87.3	85.8	84.4	-24.5	-22.49%
4750 & 4760 - PA & Northern	236.4	234.7	232.7	229.4	228.1	228.4	229.7	231.7	233.8	236.2	236.7	237.4	237.2	236.3	235.0	234.2	234.4	234.8	233.7	232.9	-3.5	-1.49%
Alberta	2435.3	2454.4	2495.2	2547.2	2592.6	2632.9	2667.4	2700.7	2734.5	2775.2	2830.1	2899.5	2953.3	3004.9	3056.7	3116.3	3161.4	3207.0	3277.6	3375.8	940.4	38.62%
4810 - Lethbridge - Medicine Hat	211.4	211.3	211.3	213.1	217.0	219.4	222.3	225.5	228.2	230.9	232.5	235.9	239.6	242.7	245.1	247.3	249.6	252.2	256.0	261.7	50.2	23.76%
4820 - Camrose - Drumheller	172.6	170.8	170.7	171.1	172.0	174.5	177.1	178.7	180.0	181.0	181.8	183.3	184.1	185.4	186.9	188.2	189.1	189.8	191.6	194.7	22.1	12.82%
4830 - Calgary	741.7	755.9	775.6	799.8	817.9	833.4	845.6	862.6	882.3	903.4	934.0	968.4	995.9	1022.4	1048.1	1076.0	1096.5	1118.2	1150.4	1193.6	451.9	60.93%
4840 - Banff - Jasper - RkyMtnH	66.6	66.7	68.0	69.0	70.0	71.3	73.1	74.9	76.7	78.4	79.9	80.9	81.9	82.3	82.5	82.9	83.1	83.3	83.7	85.0	18.4	27.64%
4850 - Red Deer	121.7	122.1	123.9	126.3	129.2	132.2	134.8	137.0	139.0	141.6	144.3	148.3	151.0	154.1	157.0	160.3	163.4	166.7	172.0	178.6	56.9	46.78%
4860 - Edmonton	836.1	840.9	856.1	875.0	891.0	903.3	911.5	914.0	916.2	922.9	936.5	955.6	971.5	987.2	1001.8	1020.3	1032.9	1045.3	1066.0	1094.2	258.2	30.88%
4870 - Athabasca - GrdPr - PcRvr	192.9	192.8	194.1	197.3	199.2	201.7	204.9	209.8	214.4	218.4	219.9	223.6	225.7	226.0	228.3	231.1	233.5	235.9	240.1	246.3	53.5	27.72%
4880 - Wood Buffalo - Cold Lake	92.5	93.9	95.6	95.7	96.5	97.1	98.2	98.2	97.8	98.5	101.2	103.4	103.5	104.9	107.0	110.2	113.3	115.5	117.8	121.7	29.2	31.61%

Footnotes

1 Based on geographical boundaries as delineated in the 2001 Census.

2 Economic region (ER) refers to a grouping of complete census divisions (with one exception in Ontario) created as a standard geographic unit for analysis of regional economic activity. Within the province of Quebec, economic regions (the 'régions administratives') are designated by law. In all other provinces or territories, economic regions are created by agreement between Statistics Canada and the provinces or territories concerned. Prince Edward Island and the three territories each consist of one economic region. In Ontario, there is one exception where the economic boundary does not respect census division boundaries: the census division of Halton is split between the ER of Hamilton-Niagara Peninsula and the ER of Toronto (2001 Census Dictionary, catalogue 92-378-XPE, page 237).

3 Estimates are final intercensal from 1986 to 2000, final postcensal from 2001 to 2003, updated postcensal for 2004 and 2005 and preliminary postcensal for 2006. Estimates are produced using the component method.

4 Preliminary postcensal population estimates by single year of age and sex for economic regions (ER) in Quebec are based on census divisions (CDs) which were prepared by 'Institut des statistiques du Québec' (ISQ). Estimates for Quebec were based on statistics derived from the registration file for insured people of the 'Régie de l'assurance-maladie'. These estimates were controlled to Statistics Canada provincial estimates. Please note that for this specific case, the component method is not applicable.

5 Postcensal estimates are based on the latest census results adjusted for net census undercoverage and for the estimated population growth that occurred since that census. Intercensal estimates are based on postcensal estimates and data adjusted for net census undercoverage of the censuses preceding and following the considered year.

6 Population estimates for census economic regions (ER) in Northwest Territories and Nunavut are provided separately from 1991.

7 Age at last birthday in years.

Population Density*																					
Geography	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
4610 - Southeast	3.57	3.63	3.70	3.74	3.77	3.82	3.87	3.91	3.97	4.02	4.07	4.12	4.14	4.19	4.24	4.21	4.28	4.35	4.44	4.52	4.60
4620 - South Central	5.31	5.32	5.32	5.29	5.25	5.24	5.26	5.28	5.32	5.38	5.43	5.46	5.48	5.50	5.55	5.49	5.53	5.58	5.66	5.74	5.83
4630 - Southwest	4.17	4.16	4.13	4.10	4.02	3.98	3.97	4.00	4.02	4.02	4.02	4.02	4.01	4.02	4.01	3.88	3.86	3.87	3.88	3.89	3.89
4640 - North Central	4.52	4.52	4.53	4.51	4.52	4.53	4.52	4.51	4.51	4.56	4.63	4.64	4.67	4.71	4.72	4.58	4.59	4.62	4.67	4.64	4.59
4650 - Winnipeg	1063.50	1073.24	1079.14	1082.54	1089.32	1096.58	1100.42	1104.14	1105.11	1105.21	1103.89	1102.02	1102.41	1106.57	1112.57	1116.73	1121.78	1127.28	1134.51	1136.40	1140.75
4660 - Interlake	4.61	4.65	4.73	4.79	4.84	4.88	4.88	4.90	5.00	5.11	5.17	5.24	5.30	5.37	5.42	5.34	5.37	5.42	5.47	5.52	5.57
4670 & 4680 - Parklands & North	0.28	0.28	0.27	0.27	0.27	0.27	0.27	0.27	0.27	0.28	0.28	0.29	0.28	0.28	0.28	0.28	0.28	0.28	0.28	0.28	0.28
4710 - Regina - Moose Mountain	5.67	5.72	5.73	5.69	5.66	5.66	5.67	5.69	5.71	5.74	5.76	5.74	5.72	5.70	5.66	5.61	5.58	5.59	5.59	5.58	5.56
4720 - Swift Current - Moose Jaw	1.54	1.54	1.51	1.49	1.45	1.43	1.42	1.41	1.40	1.40	1.39	1.38	1.37	1.36	1.34	1.31	1.30	1.29	1.28	1.26	1.24
4730 - Saskatoon - Biggar	5.76	5.83	5.83	5.82	5.78	5.78	5.81	5.84	5.88	5.94	6.00	6.03	6.06	6.07	6.05	6.10	6.10	6.10	6.13	6.13	6.12
4740 - Yorkton - Melville	2.64	2.61	2.56	2.51	2.46	2.43	2.41	2.40	2.37	2.34	2.32	2.29	2.27	2.24	2.21	2.14	2.12	2.09	2.07	2.03	2.00
4750 & 4760 - PA & Northern	0.68	0.68	0.67	0.67	0.66	0.65	0.65	0.66	0.66	0.67	0.67	0.68	0.68	0.68	0.68	0.64	0.64	0.64	0.64	0.64	0.63
4810 - Lethbridge - Medicine Hat	4.24	4.20	4.20	4.20	4.24	4.31	4.36	4.42	4.48	4.54	4.46	4.49	4.55	4.62	4.68	4.71	4.75	4.80	4.85	4.92	5.03
4820 - Camrose - Drumheller	2.24	2.21	2.19	2.19	2.19	2.20	2.24	2.27	2.29	2.31	2.31	2.32	2.34	2.35	2.37	2.40	2.42	2.43	2.44	2.46	2.50
4830 - Calgary	59.17	59.69	60.84	62.42	64.36	65.82	67.07	68.05	69.42	71.00	72.72	75.19	77.95	80.17	82.30	82.91	85.12	86.73	88.45	91.00	94.39
4840 - Banff - Jasper - RkyMtnH	0.87	0.87	0.87	0.89	0.90	0.93	0.95	0.97	0.99	1.02	1.04	1.06	1.07	1.09	1.09	1.11	1.12	1.12	1.12	1.13	1.14
4850 - Red Deer	12.23	12.27	12.31	12.49	12.73	13.02	13.32	13.59	13.81	14.01	14.28	14.54	14.95	15.23	15.53	15.84	16.17	16.49	16.83	17.36	18.02
4860 - Edmonton	56.33	56.77	57.10	58.13	59.42	56.07	56.85	57.36	57.52	57.66	58.08	58.94	60.14	61.14	62.13	63.59	64.76	65.56	66.35	67.66	69.46
4870 - Athabasca - GrdPr - PcRvr	0.74	0.73	0.73	0.74	0.75	0.76	0.77	0.78	0.80	0.81	0.82	0.82	0.84	0.85	0.85	0.84	0.86	0.86	0.87	0.89	0.91
4880 - Wood Buffalo - Cold Lake	0.72	0.70	0.71	0.72	0.72	0.73	0.73	0.74	0.74	0.74	0.77	0.79	0.81	0.81	0.82	0.84	0.87	0.89	0.91	0.93	0.96
Regional Average	153.56	154.12	154.53	154.87	155.40	155.72	156.07	156.39	156.58	156.75	156.86	157.00	157.29	157.71	158.21	158.55	159.02	159.48	160.02	160.38	160.93
Regional Average without Winnipeg	9.23	9.28	9.37	9.51	9.68	9.61	9.74	9.84	9.96	10.08	10.22	10.42	10.67	10.86	11.05	11.15	11.35	11.51	11.68	11.92	12.25
* 1986 data provided as it a census year containing the land areas for census divisions																					

Estimate of Public Employment																						
Total Employment in Education, Health Care, Social Assistance & Public Administration																						
Geography	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	Growth	% Growth
Manitoba	124.2	123.6	125.2	128.6	130.4	131.6	131.2	132.0	132.6	134.9	134.0	133.4	133.9	141.0	144.6	149.3	150.5	157.1	156.0	160.1	35.9	28.90%
4610 - Southeast	7.3	7.3	7.5	7.8	7.9	7.3	8.1	9.1	9.4	9.5	8.1	8.9	9.6	10.8	9.0	11.2	12.1	10.3	10.5	12.3	5.0	68.49%
4620 - South Central	4.1	4.4	4.3	4.9	4.6	4.8	4.8	4.4	3.5	4.1	5.0	5.2	4.2	5.1	5.1	5.8	5.9	6.7	6.0	5.2	1.1	26.83%
4630 - Southwest	13.0	13.3	12.6	10.9	11.3	11.3	12.2	11.5	11.2	12.7	12.2	12.0	12.2	12.3	12.9	13.6	14.7	14.5	12.8	14.3	1.3	10.00%
4640 - North Central	5.6	4.7	4.8	4.6	4.8	5.1	4.4	5.7	5.7	5.5	5.5	5.3	5.7	6.0	5.4	6.2	5.1	5.3	6.2	6.5	0.9	16.07%
4650 - Winnipeg	74.7	75.1	78.4	80.0	81.3	81.7	81.6	81.4	83.7	83.4	82.9	82.2	82.3	85.2	90.0	90.2	91.0	97.2	96.0	98.7	24.0	32.13%
4660 - Interlake	8.1	7.9	8.1	9.6	9.5	9.9	8.8	9.1	8.6	9.1	9.4	9.2	9.4	10.2	10.5	10.6	10.5	11.9	11.8	11.2	3.1	38.27%
4670 & 4680 - Parklands & North	11.2	10.8	9.4	10.9	11.0	11.6	11.4	10.8	9.8	10.8	11.1	10.6	10.6	11.2	11.6	11.6	11.2	11.3	12.6	11.8	0.6	5.36%
Saskatchewan	107.6	109.8	110.1	111.0	110.1	111.3	111.9	109.2	108.7	109.6	112.4	112.5	112.9	114.7	115.1	117.8	122.4	123.9	124.1	125.1	17.5	16.26%
4710 - Regina - Moose Mountain	32.9	33.3	33.5	35.7	35.1	34.8	35.6	34.5	35.1	36.2	35.4	37.0	34.8	36.1	37.9	38.4	37.9	38.1	38.7	39.6	6.7	20.36%
4720 - Swift Current - Moose Jaw	11.8	11.3	12.3	12.1	11.5	10.6	11.0	11.4	11.6	11.5	12.2	12.4	12.1	12.0	11.5	10.1	11.6	11.6	10.2	12.2	0.4	3.39%
4730 - Saskatoon - Biggar	32.3	34.1	34.2	31.7	33.4	34.1	33.8	31.4	32.9	32.3	33.0	33.0	34.5	36.2	36.9	38.3	40.5	39.7	43.1	40.7	8.4	26.01%
4740 - Yorkton - Melville	8.4	8.8	7.6	8.4	7.8	8.7	9.4	9.3	9.1	9.1	8.1	9.0	8.2	7.9	7.1	7.0	8.4	8.2	9.8	9.8	1.4	16.67%
4750 & 4760 - PA & Northern	22.1	22.4	22.7	23.0	22.3	23.0	21.9	22.8	20.0	20.5	23.8	21.0	23.3	22.4	21.7	23.9	24.0	26.5	22.4	22.6	0.5	2.26%
Alberta	271.2	278.0	290.2	292.8	299.2	295.0	296.7	288.2	288.6	297.9	307.7	313.0	313.6	315.7	323.3	331.6	341.2	340.8	360.7	391.0	119.8	44.17%
4810 - Lethbridge - Medicine Hat	20.6	22.5	21.8	24.3	22.4	24.2	25.9	23.7	24.8	27.3	25.2	26.7	27.2	23.9	23.3	24.4	25.1	26.1	30.9	31.2	10.6	51.46%
4820 - Camrose - Drumheller	15.7	17.5	16.2	18.4	18.8	18.8	18.4	16.7	16.2	17.3	18.4	17.5	16.6	18.6	18.0	17.5	20.6	17.8	18.5	23.1	7.4	47.13%
4830 - Calgary	78.7	78.8	81.4	83.6	82.8	84.4	89.3	81.5	86.9	89.0	98.0	100.1	96.9	102.7	98.9	104.3	108.7	104.3	120.1	130.8	52.1	66.20%
4840 - Banff - Jasper - RkyMtnH	6.0	5.8	6.8	7.0	6.5	6.7	6.1	7.4	7.0	6.1	5.1	7.7	5.2	6.0	5.1	6.0	4.2	4.8	5.6	7.6	1.6	26.67%
4850 - Red Deer	15.2	15.4	15.3	14.7	14.8	12.3	12.8	13.1	13.9	14.3	13.6	17.7	16.0	17.8	17.5	17.8	18.2	17.8	21.0	20.0	4.8	31.58%
4860 - Edmonton	108.5	111.6	120.8	117.4	124.6	121.8	114.1	116.1	111.4	113.9	114.7	115.6	119.6	116.5	128.1	128.6	130.9	135.8	130.8	145.0	36.5	33.64%
4870 - Athabasca - GrdPr - PcRvr	19.1	17.9	19.9	21.4	20.7	16.5	18.8	19.3	19.1	21.2	21.0	18.1	22.3	19.8	22.0	19.7	21.6	22.9	21.5	22.0	2.9	15.18%
4880 - Wood Buffalo - Cold Lake	7.9	8.6	8.1	6.2	8.7	10.3	11.3	10.2	9.5	8.8	10.4	9.8	7.3	9.0	9.6	12.0	11.2	10.5	11.2	11.4	3.5	44.30%

Percentage SE in Total Labour Force																								
Geography	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	Min	Max	Mean	
4610 - Southeast	4.47%	6.25%	4.77%	4.07%	5.17%	7.43%	4.73%	6.27%	4.37%	5.91%	4.20%	4.41%	5.40%	5.98%	6.13%	4.38%	5.51%	5.63%	5.76%	5.66%	4.07%	7.43%	5.32%	
4620 - South Central	4.60%	6.25%	5.31%	5.11%	4.66%	4.87%	6.14%	5.88%	3.73%	5.37%	5.14%	5.24%	5.18%	4.55%	4.78%	3.41%	7.84%	6.27%	5.19%	5.07%	3.41%	7.84%	5.23%	
4630 - Southwest	5.62%	5.06%	5.17%	5.29%	5.51%	4.23%	3.99%	4.72%	5.86%	6.20%	5.01%	4.82%	5.34%	4.89%	4.73%	5.38%	4.24%	3.88%	5.06%	4.12%	3.88%	6.20%	4.96%	
4640 - North Central	6.53%	4.74%	4.35%	4.25%	2.90%	3.94%	3.76%	3.57%	2.75%	5.07%	3.32%	5.56%	3.93%	5.00%	4.55%	4.96%	5.42%	4.07%	4.70%	3.93%	2.75%	6.53%	4.36%	
4650 - Winnipeg	4.19%	4.52%	4.16%	3.77%	3.89%	3.48%	3.60%	3.23%	3.50%	3.64%	4.19%	3.71%	3.32%	3.75%	3.76%	3.70%	3.73%	3.24%	3.31%	3.01%	3.01%	4.52%	3.68%	
4660 - Interlake	6.39%	4.89%	4.93%	5.80%	5.48%	5.81%	6.28%	7.90%	5.04%	6.36%	5.54%	5.34%	6.96%	6.29%	4.71%	6.16%	5.44%	4.42%	5.57%	5.38%	4.42%	7.90%	5.73%	
4670 & 4680 - Parklands & North	3.95%	4.86%	3.71%	4.86%	3.44%	4.61%	4.42%	3.02%	5.09%	4.58%	4.79%	3.37%	4.40%	4.32%	3.84%	3.68%	3.92%	4.02%	5.65%	3.64%	3.02%	5.65%	4.21%	
4710 - Regina - Moose Mountain	4.24%	3.22%	3.42%	3.90%	4.43%	3.74%	4.42%	3.68%	3.61%	4.64%	3.73%	3.84%	4.41%	4.18%	4.35%	4.21%	3.99%	3.69%	4.47%	4.35%	3.22%	4.64%	4.03%	
4720 - Swift Current - Moose Jaw	3.82%	3.79%	4.36%	3.78%	4.62%	4.81%	3.72%	4.86%	4.19%	4.81%	3.76%	4.46%	4.91%	4.71%	5.21%	4.93%	4.53%	4.91%	4.20%	4.90%	3.72%	5.21%	4.46%	
4730 - Saskatoon - Biggar	4.63%	4.94%	4.32%	4.08%	4.71%	4.12%	4.10%	4.73%	4.98%	4.42%	4.91%	4.96%	4.75%	4.52%	4.39%	4.19%	4.52%	4.51%	4.40%	4.60%	4.08%	4.98%	4.54%	
4740 - Yorkton - Melville	4.75%	5.23%	5.17%	4.18%	5.27%	4.79%	5.23%	4.58%	4.94%	5.73%	4.28%	5.40%	5.63%	5.50%	4.91%	6.55%	5.85%	5.78%	4.52%	3.78%	3.78%	6.55%	5.10%	
4750 & 4760 - PA & Northern	4.65%	5.23%	5.99%	5.79%	6.20%	5.64%	5.39%	6.03%	5.41%	5.60%	4.83%	4.35%	4.17%	5.43%	4.79%	5.15%	4.83%	4.89%	5.16%	5.26%	4.17%	6.20%	5.24%	
4810 - Lethbridge - Medicine Hat	5.46%	5.93%	5.44%	4.06%	4.40%	5.15%	4.49%	5.63%	7.67%	6.38%	6.62%	5.63%	5.38%	6.21%	4.70%	4.90%	4.22%	5.68%	6.08%	4.72%	4.06%	7.67%	5.44%	
4820 - Camrose - Drumheller	4.14%	4.27%	4.82%	6.24%	5.11%	5.37%	4.44%	5.60%	7.56%	5.49%	5.53%	5.10%	5.38%	7.43%	6.18%	8.03%	6.60%	5.96%	7.46%	6.62%	4.14%	8.03%	5.87%	
4830 - Calgary	4.14%	5.07%	5.39%	5.43%	5.66%	5.78%	6.60%	6.18%	6.44%	5.34%	5.45%	5.60%	4.97%	5.22%	4.52%	4.52%	4.91%	5.01%	5.54%	5.04%	4.14%	6.60%	5.34%	
4840 - Banff - Jasper - RkyMtnH	4.66%	6.57%	8.96%	6.15%	5.78%	6.37%	5.97%	5.84%	7.34%	8.01%	5.38%	4.84%	7.86%	6.96%	9.03%	7.80%	7.05%	8.14%	8.00%	8.06%	4.66%	9.03%	6.94%	
4850 - Red Deer	6.47%	5.99%	6.13%	6.20%	5.44%	4.63%	5.07%	3.77%	6.20%	7.24%	4.02%	4.28%	5.54%	4.78%	3.56%	4.89%	5.01%	4.62%	5.58%	7.19%	3.56%	7.24%	5.33%	
4860 - Edmonton	4.19%	5.02%	4.98%	4.28%	4.59%	4.92%	4.39%	4.41%	5.18%	5.34%	4.81%	4.42%	5.08%	4.28%	5.09%	4.11%	4.31%	4.51%	4.50%	4.79%	4.11%	5.34%	4.66%	
4870 - Athabasca - GrdPr - PcRvr	5.64%	6.34%	5.70%	5.42%	5.26%	3.91%	5.01%	5.08%	5.85%	6.68%	7.76%	6.64%	4.52%	5.27%	5.17%	5.29%	5.59%	5.67%	7.05%	6.74%	3.91%	7.76%	5.73%	
4880 - Wood Buffalo - Cold Lake	3.84%	3.59%	3.36%	3.24%	3.21%	5.70%	4.38%	3.35%	3.63%	4.18%	4.64%	3.27%	3.97%	4.69%	3.62%	3.80%	4.60%	4.21%	5.35%	4.58%	3.21%	5.70%	4.06%	
																								All Prov
																					Min	Max	Mean	Average
Manitoba	4.60%	4.85%	4.37%	4.22%	4.22%	4.16%	4.10%	4.04%	4.00%	4.46%	4.45%	4.12%	4.13%	4.34%	4.16%	4.10%	4.30%	3.81%	4.15%	3.67%	3.67%	4.85%	4.21%	4.79%
Average	5.11%	5.22%	4.63%	4.74%	4.44%	4.91%	4.70%	4.94%	4.34%	5.31%	4.60%	4.63%	4.93%	4.97%	4.64%	4.52%	5.16%	4.50%	5.03%	4.40%				
Saskatchewan	4.43%	4.36%	4.47%	4.36%	4.95%	4.46%	4.54%	4.65%	4.56%	4.86%	4.36%	4.48%	4.62%	4.69%	4.56%	4.65%	4.50%	4.48%	4.55%	4.62%	4.36%	4.95%	4.56%	4.67%
Average	4.42%	4.48%	4.65%	4.35%	5.04%	4.62%	4.57%	4.77%	4.63%	5.04%	4.30%	4.60%	4.77%	4.87%	4.73%	5.01%	4.74%	4.76%	4.55%	4.58%				
Alberta	4.48%	5.16%	5.28%	4.95%	5.00%	5.23%	5.26%	5.17%	6.06%	5.67%	5.39%	5.10%	5.12%	5.14%	4.91%	4.76%	4.85%	5.03%	5.53%	5.32%	4.48%	6.06%	5.17%	5.42%
Average	4.82%	5.35%	5.60%	5.13%	4.93%	5.23%	5.04%	4.98%	6.23%	6.08%	5.52%	4.97%	5.34%	5.61%	5.23%	5.42%	5.28%	5.48%	6.19%	5.97%				
Average of 400 Measures	5.01%																							

ER SEWE Percentage Level of LF15+																				
2 Year Rolling Averages of Annual Percentages																				
Geography	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
4610 - Southeast		5.36%	5.51%	4.42%	4.62%	6.30%	6.08%	5.50%	5.32%	5.14%	5.05%	4.30%	4.90%	5.69%	6.05%	5.25%	4.94%	5.57%	5.70%	5.71%
4620 - South Central		5.43%	5.78%	5.21%	4.88%	4.76%	5.50%	6.01%	4.81%	4.55%	5.26%	5.19%	5.21%	4.86%	4.66%	4.09%	5.62%	7.05%	5.73%	5.13%
4630 - Southwest		5.34%	5.11%	5.23%	5.40%	4.87%	4.11%	4.35%	5.29%	6.03%	5.61%	4.91%	5.08%	5.12%	4.81%	5.06%	4.81%	4.06%	4.47%	4.59%
4640 - North Central		5.64%	4.54%	4.30%	3.57%	3.42%	3.85%	3.66%	3.16%	3.91%	4.19%	4.44%	4.74%	4.47%	4.77%	4.75%	5.19%	4.74%	4.39%	4.32%
4650 - Winnipeg		4.35%	4.34%	3.96%	3.83%	3.68%	3.54%	3.42%	3.37%	3.57%	3.92%	3.95%	3.51%	3.53%	3.75%	3.73%	3.71%	3.48%	3.27%	3.16%
4660 - Interlake		5.64%	4.91%	5.37%	5.64%	5.65%	6.05%	7.09%	6.47%	5.70%	5.95%	5.44%	6.15%	6.63%	5.50%	5.44%	5.80%	4.93%	4.99%	5.47%
4670 & 4680 - Parklands & North		4.40%	4.28%	4.29%	4.15%	4.02%	4.52%	3.72%	4.06%	4.83%	4.68%	4.08%	3.88%	4.36%	4.08%	3.76%	3.80%	3.97%	4.83%	4.64%
4710 - Regina - Moose Mountain		3.73%	3.32%	3.66%	4.17%	4.08%	4.08%	4.05%	3.64%	4.13%	4.19%	3.79%	4.13%	4.29%	4.26%	4.28%	4.10%	3.84%	4.08%	4.41%
4720 - Swift Current - Moose Jaw		3.80%	4.07%	4.07%	4.20%	4.72%	4.27%	4.29%	4.52%	4.50%	4.29%	4.11%	4.68%	4.81%	4.96%	5.07%	4.73%	4.72%	4.55%	4.55%
4730 - Saskatoon - Biggar		4.79%	4.63%	4.20%	4.39%	4.41%	4.11%	4.42%	4.86%	4.70%	4.67%	4.93%	4.85%	4.64%	4.46%	4.29%	4.35%	4.52%	4.46%	4.50%
4740 - Yorkton - Melville		4.99%	5.20%	4.67%	4.73%	5.03%	5.01%	4.90%	4.76%	5.34%	5.01%	4.84%	5.52%	5.57%	5.21%	5.73%	6.20%	5.82%	5.15%	4.15%
4750 & 4760 - PA & Northern		4.94%	5.61%	5.89%	6.00%	5.92%	5.51%	5.71%	5.72%	5.50%	5.21%	4.59%	4.26%	4.80%	5.11%	4.97%	4.99%	4.86%	5.03%	5.21%
4810 - Lethbridge - Medicine Hat		5.69%	5.68%	4.75%	4.23%	4.78%	4.82%	5.06%	6.65%	7.02%	6.50%	6.12%	5.50%	5.80%	5.46%	4.80%	4.56%	4.95%	5.88%	5.40%
4820 - Camrose - Drumheller		4.20%	4.55%	5.53%	5.68%	5.24%	4.90%	5.02%	6.58%	6.52%	5.51%	5.31%	5.24%	6.40%	6.81%	7.11%	7.32%	6.28%	6.71%	7.04%
4830 - Calgary		4.60%	5.23%	5.41%	5.54%	5.72%	6.19%	6.39%	6.31%	5.89%	5.39%	5.53%	5.29%	5.09%	4.87%	4.52%	4.72%	4.96%	5.28%	5.29%
4840 - Banff - Jasper - RkyMtnH		5.62%	7.76%	7.55%	5.96%	6.08%	6.17%	5.90%	6.59%	7.67%	6.69%	5.11%	6.35%	7.41%	8.00%	8.42%	7.43%	7.59%	8.07%	8.03%
4850 - Red Deer		6.23%	6.06%	6.16%	5.82%	5.04%	4.85%	4.42%	4.99%	6.72%	5.63%	4.15%	4.91%	5.16%	4.17%	4.22%	4.95%	4.81%	5.10%	6.39%
4860 - Edmonton		4.61%	5.00%	4.63%	4.44%	4.76%	4.66%	4.40%	4.79%	5.26%	5.08%	4.61%	4.75%	4.68%	4.69%	4.60%	4.21%	4.41%	4.50%	4.64%
4870 - Athabasca - GrdPr - PcRvr		5.99%	6.02%	5.56%	5.34%	4.58%	4.46%	5.05%	5.47%	6.26%	7.22%	7.20%	5.58%	4.89%	5.22%	5.23%	5.44%	5.63%	6.36%	6.90%
4880 - Wood Buffalo - Cold Lake		3.71%	3.48%	3.30%	3.23%	4.45%	5.04%	3.87%	3.49%	3.91%	4.41%	3.95%	3.62%	4.33%	4.16%	3.71%	4.20%	4.40%	4.78%	4.96%
Manitoba		4.72%	4.61%	4.29%	4.22%	4.19%	4.13%	4.07%	4.02%	4.23%	4.45%	4.28%	4.12%	4.23%	4.25%	4.13%	4.20%	4.05%	3.98%	3.91%
Saskatchewan		4.40%	4.42%	4.41%	4.65%	4.70%	4.50%	4.60%	4.61%	4.71%	4.61%	4.42%	4.55%	4.65%	4.63%	4.61%	4.58%	4.49%	4.52%	4.59%
Alberta		4.82%	5.22%	5.11%	4.97%	5.11%	5.25%	5.22%	5.62%	5.87%	5.53%	5.24%	5.11%	5.13%	5.02%	4.83%	4.80%	4.94%	5.28%	5.43%
Prairie Average		4.71%	4.91%	4.78%	4.73%	4.82%	4.85%	4.84%	5.07%	5.29%	5.12%	4.88%	4.80%	4.85%	4.79%	4.65%	4.64%	4.68%	4.88%	4.98%
Regional Averages		4.95%	5.05%	4.91%	4.79%	4.88%	4.89%	4.86%	5.04%	5.36%	5.22%	4.83%	4.91%	5.13%	5.05%	4.95%	5.05%	5.03%	5.17%	5.22%

ER SEWE Rates as Percentage of Regional Averages																				
2 Year Rolling Averages of Annual Percentages																				
Geography	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
4610 - Southeast		108.26%	109.06%	90.07%	96.43%	129.18%	124.38%	113.07%	105.46%	95.91%	96.75%	89.10%	99.91%	111.01%	119.91%	106.05%	97.83%	110.77%	110.26%	109.31%
4620 - South Central		109.56%	114.33%	106.09%	101.94%	97.70%	112.64%	123.66%	95.38%	84.97%	100.63%	107.49%	106.15%	94.84%	92.35%	82.71%	111.27%	140.24%	110.93%	98.22%
4630 - Southwest		107.74%	101.19%	106.64%	112.78%	99.90%	84.15%	89.56%	104.88%	112.57%	107.36%	101.75%	103.50%	99.78%	95.28%	102.19%	95.19%	80.69%	86.52%	87.84%
4640 - North Central		113.79%	89.90%	87.55%	74.56%	70.13%	78.76%	75.36%	62.72%	72.98%	80.29%	91.88%	96.62%	87.09%	94.52%	95.98%	102.66%	94.33%	84.91%	82.60%
4650 - Winnipeg		87.89%	85.82%	80.71%	79.91%	75.57%	72.46%	70.31%	66.83%	66.70%	75.04%	81.85%	71.59%	68.94%	74.37%	75.28%	73.46%	69.24%	63.35%	60.46%
4660 - Interlake		113.88%	97.18%	109.39%	117.81%	115.78%	123.73%	145.88%	128.32%	106.36%	113.96%	112.65%	125.26%	129.25%	108.91%	109.77%	114.84%	97.98%	96.61%	104.73%
4670 & 4680 - Parklands & North		88.88%	84.77%	87.36%	86.67%	82.51%	92.41%	76.61%	80.49%	90.22%	89.71%	84.54%	79.14%	84.99%	80.74%	75.87%	75.18%	78.94%	93.56%	88.89%
4710 - Regina - Moose Mountain		75.31%	65.66%	74.60%	86.96%	83.72%	83.49%	83.29%	72.29%	77.05%	80.22%	78.47%	84.12%	83.77%	84.40%	86.40%	81.08%	76.28%	78.96%	84.40%
4720 - Swift Current - Moose Jaw		76.82%	80.58%	82.89%	87.65%	96.73%	87.31%	88.17%	89.70%	83.99%	82.11%	85.12%	95.40%	93.81%	98.27%	102.48%	93.63%	93.78%	88.10%	87.10%
4730 - Saskatoon - Biggar		96.64%	91.63%	85.52%	91.65%	90.52%	84.17%	90.85%	96.31%	87.75%	89.33%	102.20%	98.91%	90.42%	88.26%	86.58%	86.11%	89.77%	86.26%	86.08%
4740 - Yorkton - Melville		100.78%	102.86%	95.17%	98.64%	103.24%	102.56%	100.84%	94.41%	99.63%	95.87%	100.22%	112.38%	108.63%	103.12%	115.76%	122.75%	115.66%	99.75%	79.49%
4750 & 4760 - PA & Northern		99.74%	110.92%	119.99%	125.15%	121.39%	112.83%	117.38%	113.40%	102.68%	99.81%	95.07%	86.82%	93.60%	101.14%	100.37%	98.73%	96.61%	97.29%	99.75%
4810 - Lethbridge - Medicine Hat		114.92%	112.47%	96.78%	88.33%	97.99%	98.65%	104.08%	131.88%	131.04%	124.39%	126.79%	112.14%	113.08%	108.09%	96.93%	90.21%	98.40%	113.80%	103.40%
4820 - Camrose - Drumheller		84.90%	89.94%	112.75%	118.50%	107.46%	100.35%	103.26%	130.53%	121.72%	105.42%	110.02%	106.69%	124.93%	134.86%	143.57%	144.80%	124.89%	129.86%	134.76%
4830 - Calgary		92.96%	103.44%	110.16%	115.69%	117.35%	126.76%	131.44%	125.12%	109.88%	103.27%	114.43%	107.69%	99.36%	96.35%	91.28%	93.33%	98.63%	102.16%	101.26%
4840 - Banff - Jasper - RkyMtnH		113.39%	153.61%	153.94%	124.50%	124.60%	126.27%	121.44%	130.72%	143.21%	128.15%	105.82%	129.42%	144.58%	158.39%	170.02%	146.95%	150.95%	156.17%	153.65%
4850 - Red Deer		125.73%	119.84%	125.54%	121.46%	103.28%	99.30%	90.96%	98.88%	125.39%	107.80%	85.96%	100.06%	100.71%	82.58%	85.33%	97.95%	95.72%	98.74%	122.22%
4860 - Edmonton		92.99%	98.98%	94.38%	92.60%	97.57%	95.28%	90.45%	95.04%	98.15%	97.20%	95.56%	96.77%	91.33%	92.79%	92.86%	83.30%	87.65%	87.13%	88.85%
4870 - Athabasca - GrdPr - PcRvr		120.88%	119.06%	113.22%	111.41%	94.03%	91.35%	103.86%	108.44%	116.91%	138.25%	149.17%	113.69%	95.43%	103.34%	105.61%	107.63%	111.90%	123.09%	131.98%
4880 - Wood Buffalo - Cold Lake		74.96%	68.77%	67.27%	67.34%	91.34%	103.16%	79.53%	69.19%	72.89%	84.45%	81.90%	73.75%	84.45%	82.32%	74.98%	83.09%	87.57%	92.55%	95.02%
Manitoba		95.36%	91.17%	87.49%	88.08%	85.89%	84.53%	83.81%	79.83%	79.00%	85.30%	88.70%	84.03%	82.58%	84.17%	83.43%	83.08%	80.60%	77.05%	74.83%
Saskatchewan		88.81%	87.36%	89.92%	97.12%	96.42%	92.07%	94.53%	91.37%	87.92%	88.26%	91.56%	92.77%	90.80%	91.62%	93.09%	90.58%	89.28%	87.43%	87.76%
Alberta		97.37%	103.32%	104.20%	103.76%	104.89%	107.38%	107.29%	111.43%	109.50%	105.87%	108.54%	104.02%	99.99%	99.43%	97.56%	95.03%	98.21%	102.20%	103.84%
Prairie Average		95.11%	97.19%	97.43%	98.84%	98.92%	99.21%	99.52%	100.54%	98.64%	98.04%	101.08%	97.69%	94.62%	94.82%	93.82%	91.78%	93.05%	94.51%	95.24%
Regional Averages (=100%)		4.95%	5.05%	4.91%	4.79%	4.88%	4.89%	4.86%	5.04%	5.36%	5.22%	4.83%	4.91%	5.13%	5.05%	4.95%	5.05%	5.03%	5.17%	5.22%

ER SEWE Percentage Level of LF15+																				
3 Year Rolling Averages of Annual Percentages																				
Geography	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
4610 - Southeast			5.17%	5.03%	4.67%	5.56%	5.78%	6.14%	5.12%	5.51%	4.82%	4.84%	4.67%	5.26%	5.84%	5.49%	5.34%	5.17%	5.63%	5.68%
4620 - South Central			5.39%	5.55%	5.02%	4.88%	5.22%	5.63%	5.25%	5.00%	4.75%	5.25%	5.19%	4.99%	4.84%	4.25%	5.34%	5.84%	6.43%	5.51%
4630 - Southwest			5.28%	5.17%	5.33%	5.01%	4.58%	4.31%	4.86%	5.59%	5.69%	5.34%	5.06%	5.02%	4.99%	5.00%	4.79%	4.50%	4.39%	4.35%
4640 - North Central			5.21%	4.44%	3.83%	3.69%	3.53%	3.76%	3.36%	3.80%	3.71%	4.65%	4.27%	4.83%	4.49%	4.83%	4.97%	4.82%	4.73%	4.23%
4650 - Winnipeg			4.29%	4.15%	3.94%	3.71%	3.66%	3.44%	3.45%	3.46%	3.78%	3.85%	3.74%	3.59%	3.61%	3.74%	3.73%	3.55%	3.42%	3.19%
4660 - Interlake			5.40%	5.21%	5.41%	5.70%	5.86%	6.66%	6.41%	6.43%	5.65%	5.75%	5.95%	6.20%	5.99%	5.72%	5.44%	5.34%	5.14%	5.12%
4670 & 4680 - Parklands & North			4.17%	4.48%	4.01%	4.30%	4.16%	4.02%	4.18%	4.23%	4.82%	4.25%	4.19%	4.03%	4.18%	3.94%	3.81%	3.87%	4.53%	4.44%
4710 - Regina - Moose Mountain			3.63%	3.51%	3.92%	4.02%	4.20%	3.94%	3.90%	3.98%	4.00%	4.07%	4.00%	4.14%	4.31%	4.24%	4.18%	3.96%	4.05%	4.17%
4720 - Swift Current - Moose Jaw			3.99%	3.97%	4.25%	4.40%	4.38%	4.46%	4.25%	4.62%	4.25%	4.34%	4.38%	4.69%	4.94%	4.95%	4.89%	4.79%	4.54%	4.67%
4730 - Saskatoon - Biggar			4.63%	4.45%	4.37%	4.30%	4.31%	4.32%	4.60%	4.71%	4.77%	4.76%	4.87%	4.74%	4.55%	4.37%	4.36%	4.41%	4.48%	4.50%
4740 - Yorkton - Melville			5.05%	4.86%	4.87%	4.75%	5.10%	4.87%	4.92%	5.08%	4.99%	5.14%	5.10%	5.51%	5.35%	5.66%	5.77%	6.06%	5.39%	4.70%
4750 & 4760 - PA & Northern			5.29%	5.67%	5.99%	5.88%	5.74%	5.68%	5.61%	5.68%	5.28%	4.93%	4.45%	4.65%	4.79%	5.12%	4.92%	4.96%	4.96%	5.11%
4810 - Lethbridge - Medicine Hat			5.61%	5.14%	4.63%	4.54%	4.68%	5.09%	5.93%	6.56%	6.89%	6.21%	5.87%	5.74%	5.43%	5.27%	4.61%	4.93%	5.33%	5.49%
4820 - Camrose - Drumheller			4.41%	5.11%	5.39%	5.57%	4.97%	5.14%	5.87%	6.22%	6.19%	5.37%	5.33%	5.97%	6.33%	7.22%	6.94%	6.87%	6.67%	6.68%
4830 - Calgary			4.87%	5.29%	5.49%	5.62%	6.02%	6.19%	6.41%	5.98%	5.74%	5.46%	5.34%	5.26%	4.90%	4.75%	4.65%	4.82%	5.15%	5.20%
4840 - Banff - Jasper - RkyMtnH			6.73%	7.23%	6.96%	6.10%	6.04%	6.06%	6.38%	7.06%	6.91%	6.08%	6.03%	6.56%	7.95%	7.93%	7.96%	7.66%	7.73%	8.06%
4850 - Red Deer			6.19%	6.10%	5.92%	5.42%	5.05%	4.49%	5.01%	5.74%	5.82%	5.18%	4.61%	4.87%	4.63%	4.41%	4.48%	4.84%	5.07%	5.80%
4860 - Edmonton			4.73%	4.76%	4.62%	4.60%	4.63%	4.57%	4.66%	4.98%	5.11%	4.86%	4.77%	4.59%	4.82%	4.49%	4.50%	4.31%	4.44%	4.60%
4870 - Athabasca - GrdPr - PcRvr			5.89%	5.82%	5.46%	4.86%	4.73%	4.67%	5.32%	5.87%	6.76%	7.03%	6.31%	5.48%	4.98%	5.24%	5.35%	5.52%	6.10%	6.49%
4880 - Wood Buffalo - Cold Lake			3.60%	3.40%	3.27%	4.05%	4.43%	4.48%	3.79%	3.72%	4.15%	4.03%	3.96%	3.98%	4.09%	4.04%	4.01%	4.20%	4.72%	4.71%
Manitoba			4.60%	4.48%	4.27%	4.20%	4.16%	4.10%	4.05%	4.17%	4.30%	4.34%	4.23%	4.20%	4.21%	4.20%	4.19%	4.07%	4.09%	3.88%
Saskatchewan			4.42%	4.40%	4.59%	4.59%	4.65%	4.55%	4.58%	4.69%	4.59%	4.57%	4.49%	4.60%	4.62%	4.64%	4.57%	4.54%	4.51%	4.55%
Alberta			4.98%	5.13%	5.07%	5.06%	5.16%	5.22%	5.50%	5.64%	5.71%	5.38%	5.20%	5.12%	5.05%	4.93%	4.84%	4.88%	5.14%	5.29%
Prairie Average			4.77%	4.83%	4.79%	4.77%	4.83%	4.84%	5.00%	5.13%	5.19%	5.00%	4.86%	4.83%	4.80%	4.73%	4.66%	4.65%	4.81%	4.88%
Regional Averages			4.98%	4.97%	4.87%	4.85%	4.85%	4.90%	4.96%	5.21%	5.20%	5.07%	4.90%	5.01%	5.05%	5.03%	5.00%	5.02%	5.15%	5.14%

ER SEWE Rates as Percentage of Regional Averages																				
3 Year Rolling Averages of Annual Percentages																				
Geography	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
4610 - Southeast			103.82%	101.27%	95.97%	114.57%	119.01%	125.40%	103.17%	105.83%	92.72%	95.45%	95.19%	105.16%	115.54%	109.16%	106.71%	103.03%	109.51%	110.70%
4620 - South Central			108.25%	111.81%	103.23%	100.61%	107.62%	114.99%	105.83%	95.88%	91.24%	103.59%	105.76%	99.67%	95.72%	84.33%	106.79%	116.30%	125.01%	107.33%
4630 - Southwest			106.15%	104.16%	109.43%	103.37%	94.34%	88.09%	97.84%	107.33%	109.36%	105.42%	103.11%	100.21%	98.76%	99.38%	95.66%	89.64%	85.35%	84.78%
4640 - North Central			104.64%	89.47%	78.70%	76.20%	72.78%	76.72%	67.69%	72.88%	71.35%	91.68%	87.03%	96.47%	88.93%	96.05%	99.43%	95.92%	91.92%	82.46%
4650 - Winnipeg			86.17%	83.48%	80.89%	76.55%	75.36%	70.23%	69.44%	66.42%	72.65%	75.95%	76.27%	71.79%	71.45%	74.21%	74.51%	70.79%	66.55%	62.03%
4660 - Interlake			108.61%	104.87%	111.08%	117.53%	120.71%	136.11%	129.09%	123.46%	108.51%	113.37%	121.26%	123.80%	118.51%	113.65%	108.70%	106.37%	99.92%	99.70%
4670 & 4680 - Parklands & North			83.85%	90.13%	82.28%	88.74%	85.66%	82.07%	84.23%	81.19%	92.64%	83.78%	85.39%	80.49%	82.83%	78.34%	76.20%	77.13%	88.03%	86.39%
4710 - Regina - Moose Mountain			72.87%	70.73%	80.47%	82.97%	86.45%	80.57%	78.65%	76.33%	76.81%	80.37%	81.51%	82.80%	85.38%	84.30%	83.58%	78.88%	78.68%	81.18%
4720 - Swift Current - Moose Jaw			80.16%	80.02%	87.34%	90.83%	90.32%	91.15%	85.71%	88.64%	81.76%	85.70%	89.24%	93.74%	97.89%	98.39%	97.80%	95.39%	88.31%	90.92%
4730 - Saskatoon - Biggar			93.06%	89.50%	89.70%	88.71%	88.81%	88.21%	92.77%	90.42%	91.66%	94.00%	99.35%	94.80%	90.14%	86.74%	87.23%	87.75%	87.00%	87.69%
4740 - Yorkton - Melville			101.49%	97.79%	100.09%	97.92%	105.07%	99.38%	99.05%	97.57%	95.80%	101.35%	104.08%	110.14%	105.90%	112.36%	115.39%	120.76%	104.68%	91.46%
4750 & 4760 - PA & Northern			106.29%	114.10%	123.11%	121.20%	118.31%	116.10%	112.97%	108.94%	101.42%	97.17%	90.76%	92.90%	94.92%	101.76%	98.39%	98.73%	96.38%	99.42%
4810 - Lethbridge - Medicine Hat			112.72%	103.52%	95.22%	93.59%	96.47%	103.97%	119.45%	125.85%	132.33%	122.46%	119.79%	114.70%	107.54%	104.72%	92.08%	98.23%	103.51%	107.00%
4820 - Camrose - Drumheller			88.65%	102.90%	110.79%	114.96%	102.46%	104.91%	118.20%	119.28%	118.95%	105.94%	108.75%	119.27%	125.34%	143.38%	138.73%	136.74%	129.69%	130.11%
4830 - Calgary			97.78%	106.57%	112.81%	115.97%	123.96%	126.39%	129.08%	114.83%	110.34%	107.75%	108.91%	105.14%	97.03%	94.39%	92.95%	95.90%	100.18%	101.22%
4840 - Banff - Jasper - RkyMtnH			135.27%	145.46%	143.05%	125.81%	124.45%	123.78%	128.59%	135.54%	132.75%	119.86%	122.90%	130.98%	157.44%	157.60%	159.16%	152.62%	150.20%	157.04%
4850 - Red Deer			124.47%	122.87%	121.65%	111.84%	104.02%	91.74%	101.03%	110.08%	111.83%	102.19%	94.10%	97.28%	91.60%	87.63%	89.66%	96.42%	98.51%	112.91%
4860 - Edmonton			95.09%	95.86%	94.88%	94.85%	95.48%	93.40%	93.82%	95.48%	98.18%	95.82%	97.26%	91.79%	95.37%	89.26%	90.00%	85.81%	86.25%	89.53%
4870 - Athabasca - GrdPr - PcRvr			118.38%	117.11%	112.11%	100.27%	97.43%	95.38%	107.11%	112.66%	129.97%	138.64%	128.62%	109.41%	98.68%	104.13%	106.92%	109.86%	118.59%	126.32%
4880 - Wood Buffalo - Cold Lake			72.28%	68.39%	67.22%	83.51%	91.30%	91.43%	76.30%	71.39%	79.74%	79.52%	80.73%	79.46%	81.05%	80.23%	80.10%	83.73%	91.72%	91.80%
Manitoba			92.54%	90.15%	87.71%	86.59%	85.72%	83.77%	81.62%	80.03%	82.72%	85.67%	86.30%	83.82%	83.35%	83.43%	83.69%	81.04%	79.42%	75.49%
Saskatchewan			88.86%	88.51%	94.31%	94.61%	95.77%	92.92%	92.36%	90.03%	88.26%	90.11%	91.52%	91.87%	91.56%	92.09%	91.43%	90.52%	87.68%	88.61%
Alberta			100.00%	103.27%	104.25%	104.32%	106.39%	106.65%	110.78%	108.15%	109.67%	106.22%	106.03%	102.21%	100.03%	97.99%	96.69%	97.17%	99.82%	103.09%
Prairie Average			95.96%	97.20%	98.43%	98.35%	99.62%	98.81%	100.70%	98.44%	99.66%	98.73%	99.09%	96.40%	94.97%	93.87%	93.06%	92.69%	93.55%	95.02%
Regional Averages (=100%)			4.98%	4.97%	4.87%	4.85%	4.85%	4.90%	4.96%	5.21%	5.20%	5.07%	4.90%	5.01%	5.05%	5.03%	5.00%	5.02%	5.15%	5.14%

ER SEWE Percentage Level of LF15+																				
4 Year Rolling Averages of Annual Percentages																				
Geography	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
4610 - Southeast				4.89%	5.07%	5.36%	5.35%	5.90%	5.70%	5.32%	5.18%	4.72%	4.98%	5.00%	5.48%	5.47%	5.50%	5.41%	5.32%	5.64%
4620 - South Central				5.32%	5.33%	4.99%	5.19%	5.39%	5.16%	5.28%	5.03%	4.87%	5.23%	5.03%	4.94%	4.48%	5.14%	5.57%	5.68%	6.09%
4630 - Southwest				5.28%	5.26%	5.05%	4.76%	4.61%	4.70%	5.19%	5.45%	5.47%	5.34%	5.01%	4.95%	5.09%	4.81%	4.56%	4.64%	4.32%
4640 - North Central				4.97%	4.06%	3.86%	3.71%	3.54%	3.51%	3.79%	3.68%	4.17%	4.47%	4.45%	4.76%	4.61%	4.98%	4.75%	4.79%	4.53%
4650 - Winnipeg				4.16%	4.08%	3.82%	3.68%	3.55%	3.45%	3.50%	3.64%	3.76%	3.72%	3.74%	3.63%	3.63%	3.73%	3.61%	3.49%	3.32%
4660 - Interlake				5.50%	5.28%	5.51%	5.84%	6.37%	6.26%	6.40%	6.21%	5.57%	6.05%	6.03%	5.82%	6.03%	5.65%	5.18%	5.40%	5.20%
4670 & 4680 - Parklands & North				4.34%	4.22%	4.16%	4.33%	3.87%	4.29%	4.28%	4.37%	4.46%	4.28%	4.22%	3.98%	4.06%	3.94%	3.86%	4.32%	4.31%
4710 - Regina - Moose Mountain				3.70%	3.74%	3.87%	4.12%	4.07%	3.86%	4.09%	3.92%	3.96%	4.16%	4.04%	4.20%	4.29%	4.18%	4.06%	4.09%	4.12%
4720 - Swift Current - Moose Jaw				3.94%	4.14%	4.39%	4.23%	4.50%	4.39%	4.39%	4.41%	4.31%	4.49%	4.46%	4.82%	4.94%	4.85%	4.90%	4.64%	4.63%
4730 - Saskatoon - Biggar				4.49%	4.51%	4.31%	4.25%	4.42%	4.48%	4.56%	4.76%	4.82%	4.76%	4.79%	4.66%	4.46%	4.40%	4.40%	4.40%	4.51%
4740 - Yorkton - Melville				4.83%	4.96%	4.85%	4.87%	4.97%	4.89%	5.12%	4.88%	5.09%	5.26%	5.20%	5.36%	5.65%	5.70%	5.77%	5.68%	4.99%
4750 & 4760 - PA & Northern				5.41%	5.80%	5.90%	5.75%	5.81%	5.62%	5.60%	5.46%	5.05%	4.74%	4.69%	4.68%	4.88%	5.05%	4.91%	5.01%	5.04%
4810 - Lethbridge - Medicine Hat				5.22%	4.96%	4.76%	4.53%	4.92%	5.73%	6.04%	6.57%	6.57%	6.00%	5.96%	5.48%	5.30%	5.01%	4.87%	5.22%	5.18%
4820 - Camrose - Drumheller				4.87%	5.11%	5.39%	5.29%	5.13%	5.74%	5.77%	6.04%	5.92%	5.37%	5.86%	6.02%	6.76%	7.06%	6.70%	7.01%	6.66%
4830 - Calgary				5.01%	5.39%	5.56%	5.87%	6.06%	6.25%	6.14%	5.85%	5.71%	5.34%	5.31%	5.08%	4.81%	4.79%	4.74%	5.00%	5.13%
4840 - Banff - Jasper - RkyMtnH				6.59%	6.86%	6.82%	6.07%	5.99%	6.38%	6.79%	6.64%	6.39%	6.52%	6.26%	7.18%	7.92%	7.71%	8.01%	7.75%	7.81%
4850 - Red Deer				6.19%	5.94%	5.60%	5.34%	4.73%	4.92%	5.57%	5.31%	5.43%	5.27%	4.66%	4.54%	4.69%	4.56%	4.52%	5.03%	5.60%
4860 - Edmonton				4.62%	4.72%	4.69%	4.55%	4.58%	4.72%	4.83%	4.93%	4.94%	4.91%	4.65%	4.72%	4.64%	4.45%	4.50%	4.36%	4.53%
4870 - Athabasca - GrdPr - PcRvr				5.77%	5.68%	5.07%	4.90%	4.82%	4.97%	5.66%	6.34%	6.73%	6.40%	6.05%	5.40%	5.06%	5.33%	5.43%	5.90%	6.26%
4880 - Wood Buffalo - Cold Lake				3.51%	3.35%	3.88%	4.13%	4.16%	4.26%	3.89%	3.95%	3.93%	4.02%	4.14%	3.89%	4.02%	4.18%	4.06%	4.49%	4.68%
Manitoba				4.51%	4.41%	4.24%	4.17%	4.13%	4.08%	4.15%	4.24%	4.26%	4.29%	4.26%	4.19%	4.18%	4.22%	4.09%	4.09%	3.98%
Saskatchewan				4.41%	4.53%	4.56%	4.58%	4.65%	4.55%	4.65%	4.61%	4.57%	4.58%	4.54%	4.59%	4.63%	4.60%	4.55%	4.55%	4.54%
Alberta				4.97%	5.10%	5.11%	5.11%	5.17%	5.43%	5.54%	5.57%	5.55%	5.32%	5.18%	5.06%	4.98%	4.91%	4.89%	5.04%	5.18%
Prairie Average				4.75%	4.82%	4.80%	4.79%	4.83%	4.96%	5.06%	5.09%	5.08%	4.96%	4.87%	4.79%	4.75%	4.71%	4.66%	4.76%	4.83%
Regional Averages				4.93%	4.92%	4.89%	4.84%	4.87%	4.96%	5.11%	5.13%	5.09%	5.07%	4.98%	4.98%	5.04%	5.05%	4.99%	5.11%	5.13%

ER SEWE Rates as Percentage of Regional Averages																				
4 Year Rolling Averages of Annual Percentages																				
Geography	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
4610 - Southeast				99.21%	102.92%	109.57%	110.54%	121.14%	114.77%	104.07%	101.03%	92.68%	98.28%	100.38%	110.05%	108.57%	108.87%	108.43%	104.11%	110.03%
4620 - South Central				107.83%	108.30%	101.91%	107.35%	110.66%	103.87%	103.37%	98.05%	95.64%	103.30%	100.98%	99.16%	88.88%	101.81%	111.70%	111.10%	118.83%
4630 - Southwest				107.19%	106.83%	103.28%	98.33%	94.74%	94.68%	101.63%	106.14%	107.44%	105.49%	100.74%	99.33%	100.96%	95.24%	91.36%	90.81%	84.33%
4640 - North Central				100.73%	82.44%	78.87%	76.68%	72.74%	70.61%	74.11%	71.66%	81.94%	88.21%	89.42%	95.56%	91.46%	98.59%	95.14%	93.69%	88.35%
4650 - Winnipeg				84.32%	82.94%	78.15%	76.15%	72.94%	69.60%	68.42%	71.01%	73.88%	73.37%	75.20%	73.00%	72.05%	73.91%	72.24%	68.35%	64.77%
4660 - Interlake				111.64%	107.22%	112.57%	120.80%	130.81%	126.06%	125.16%	121.02%	109.34%	119.44%	121.20%	116.97%	119.68%	111.88%	103.83%	105.63%	101.42%
4670 & 4680 - Parklands & North				88.12%	85.69%	84.94%	89.56%	79.56%	86.36%	83.75%	85.18%	87.53%	84.58%	84.77%	79.95%	80.51%	77.96%	77.42%	84.47%	84.01%
4710 - Regina - Moose Mountain				74.95%	76.03%	79.15%	85.21%	83.50%	77.80%	80.02%	76.32%	77.72%	82.11%	81.20%	84.26%	85.06%	82.74%	81.30%	80.01%	80.42%
4720 - Swift Current - Moose Jaw				79.84%	84.02%	89.78%	87.48%	92.46%	88.52%	85.98%	85.84%	84.52%	88.55%	89.60%	96.86%	98.07%	95.95%	98.10%	90.83%	90.38%
4730 - Saskatoon - Biggar				91.10%	91.64%	88.01%	87.87%	90.69%	90.33%	89.23%	92.76%	94.60%	93.97%	96.13%	93.51%	88.53%	87.18%	88.19%	86.19%	87.89%
4740 - Yorkton - Melville				97.99%	100.80%	99.19%	100.62%	102.04%	98.42%	100.20%	95.15%	99.91%	103.87%	104.55%	107.69%	112.13%	112.94%	115.71%	111.12%	97.23%
4750 & 4760 - PA & Northern				109.81%	117.84%	120.69%	118.93%	119.39%	113.12%	109.67%	106.49%	99.07%	93.51%	94.32%	94.08%	96.93%	99.93%	98.47%	98.00%	98.21%
4810 - Lethbridge - Medicine Hat				105.89%	100.72%	97.38%	93.54%	101.03%	115.53%	118.22%	128.07%	129.03%	118.46%	119.73%	110.09%	105.14%	99.15%	97.67%	102.14%	100.95%
4820 - Camrose - Drumheller				98.76%	103.84%	110.12%	109.34%	105.37%	115.68%	112.94%	117.75%	116.17%	106.03%	117.70%	120.98%	134.09%	139.83%	134.15%	137.25%	129.92%
4830 - Calgary				101.52%	109.40%	113.74%	121.28%	124.38%	125.93%	120.13%	114.01%	112.03%	105.41%	106.67%	101.94%	95.39%	94.84%	94.98%	97.80%	99.97%
4840 - Banff - Jasper - RkyMtnH				133.57%	139.44%	139.32%	125.40%	123.03%	128.53%	132.86%	129.41%	125.49%	128.76%	125.78%	144.11%	157.08%	152.67%	160.41%	151.61%	152.33%
4850 - Red Deer				125.63%	120.63%	114.44%	110.27%	97.13%	99.09%	109.01%	103.42%	106.70%	104.05%	93.56%	91.19%	93.15%	90.27%	90.56%	98.35%	109.22%
4860 - Edmonton				93.68%	95.87%	95.97%	93.95%	94.02%	95.16%	94.49%	96.14%	96.92%	96.99%	93.38%	94.75%	92.08%	88.04%	90.24%	85.24%	88.26%
4870 - Athabasca - GrdPr - PcRvr				117.07%	115.34%	103.65%	101.28%	98.93%	100.03%	110.70%	123.61%	132.20%	126.35%	121.50%	108.44%	100.43%	105.48%	108.78%	115.44%	122.13%
4880 - Wood Buffalo - Cold Lake				71.14%	68.08%	79.27%	85.42%	85.45%	85.91%	76.05%	76.96%	77.16%	79.27%	83.21%	78.10%	79.79%	82.71%	81.33%	87.87%	91.37%
Manitoba				91.44%	89.67%	86.69%	86.29%	84.85%	82.14%	81.29%	82.61%	83.60%	84.69%	85.55%	84.10%	83.00%	83.62%	82.00%	80.03%	77.66%
Saskatchewan				89.36%	92.11%	93.16%	94.57%	95.48%	91.71%	91.06%	89.79%	89.64%	90.44%	91.17%	92.19%	91.92%	91.10%	91.17%	88.99%	88.51%
Alberta				100.77%	103.54%	104.55%	105.59%	106.09%	109.44%	108.45%	108.60%	109.05%	104.97%	104.14%	101.69%	98.80%	97.23%	97.89%	98.66%	101.08%
Prairie Average				96.26%	97.99%	98.17%	99.02%	99.22%	99.88%	99.06%	99.27%	99.79%	97.87%	97.75%	96.23%	94.23%	93.30%	93.43%	93.16%	94.17%
Regional Averages (=100%)				4.93%	4.92%	4.89%	4.84%	4.87%	4.96%	5.11%	5.13%	5.09%	5.07%	4.98%	4.98%	5.04%	5.05%	4.99%	5.11%	5.13%

ER SEWE Percentage Level of LF15+																				
5 Year Rolling Averages of Annual Percentages																				
Geography	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
4610 - Southeast					4.95%	5.54%	5.23%	5.53%	5.59%	5.74%	5.09%	5.03%	4.86%	5.18%	5.22%	5.26%	5.48%	5.53%	5.48%	5.39%
4620 - South Central					5.19%	5.24%	5.22%	5.33%	5.06%	5.20%	5.25%	5.07%	4.93%	5.10%	4.98%	4.63%	5.15%	5.37%	5.50%	5.56%
4630 - Southwest					5.33%	5.05%	4.84%	4.75%	4.86%	5.00%	5.16%	5.32%	5.45%	5.25%	4.96%	5.03%	4.92%	4.62%	4.66%	4.54%
4640 - North Central					4.55%	4.03%	3.84%	3.68%	3.38%	3.82%	3.69%	4.05%	4.12%	4.57%	4.47%	4.80%	4.77%	4.80%	4.74%	4.62%
4650 - Winnipeg					4.10%	3.96%	3.78%	3.59%	3.54%	3.49%	3.64%	3.66%	3.67%	3.72%	3.75%	3.65%	3.65%	3.63%	3.55%	3.40%
4660 - Interlake					5.50%	5.38%	5.66%	6.26%	6.10%	6.28%	6.23%	6.04%	5.85%	6.10%	5.77%	5.89%	5.91%	5.40%	5.26%	5.39%
4670 & 4680 - Parklands & North					4.16%	4.30%	4.21%	4.07%	4.12%	4.34%	4.38%	4.17%	4.45%	4.29%	4.14%	3.92%	4.03%	3.95%	4.22%	4.18%
4710 - Regina - Moose Mountain					3.84%	3.74%	3.98%	4.03%	3.98%	4.02%	4.02%	3.90%	4.05%	4.16%	4.10%	4.20%	4.23%	4.08%	4.14%	4.14%
4720 - Swift Current - Moose Jaw					4.07%	4.27%	4.26%	4.36%	4.44%	4.48%	4.27%	4.42%	4.43%	4.53%	4.61%	4.84%	4.86%	4.86%	4.76%	4.69%
4730 - Saskatoon - Biggar					4.53%	4.43%	4.26%	4.35%	4.53%	4.47%	4.63%	4.80%	4.80%	4.71%	4.71%	4.56%	4.47%	4.43%	4.40%	4.44%
4740 - Yorkton - Melville					4.92%	4.93%	4.93%	4.81%	4.96%	5.05%	4.95%	4.99%	5.20%	5.31%	5.15%	5.60%	5.69%	5.72%	5.52%	5.30%
4750 & 4760 - PA & Northern					5.57%	5.77%	5.80%	5.81%	5.73%	5.61%	5.45%	5.24%	4.87%	4.87%	4.71%	4.78%	4.87%	5.02%	4.96%	5.06%
4810 - Lethbridge - Medicine Hat					5.06%	5.00%	4.71%	4.75%	5.47%	5.86%	6.16%	6.38%	6.33%	6.04%	5.71%	5.36%	5.08%	5.14%	5.12%	5.12%
4820 - Camrose - Drumheller					4.92%	5.16%	5.20%	5.35%	5.62%	5.69%	5.72%	5.85%	5.81%	5.78%	5.92%	6.43%	6.73%	6.84%	6.85%	6.94%
4830 - Calgary					5.14%	5.47%	5.77%	5.93%	6.13%	6.07%	6.00%	5.80%	5.56%	5.31%	5.15%	4.97%	4.83%	4.84%	4.90%	5.01%
4840 - Banff - Jasper - RkyMtnH					6.42%	6.77%	6.65%	6.02%	6.26%	6.71%	6.51%	6.28%	6.69%	6.61%	6.82%	7.30%	7.74%	7.80%	8.00%	7.81%
4850 - Red Deer					6.04%	5.68%	5.49%	5.02%	5.02%	5.38%	5.26%	5.10%	5.46%	5.17%	4.44%	4.61%	4.76%	4.57%	4.73%	5.46%
4860 - Edmonton					4.61%	4.76%	4.63%	4.52%	4.70%	4.85%	4.82%	4.83%	4.97%	4.79%	4.74%	4.60%	4.57%	4.46%	4.50%	4.44%
4870 - Athabasca - GrdPr - PcRvr					5.67%	5.32%	5.06%	4.94%	5.02%	5.31%	6.08%	6.40%	6.29%	6.17%	5.87%	5.38%	5.17%	5.40%	5.75%	6.07%
4880 - Wood Buffalo - Cold Lake					3.45%	3.82%	3.98%	3.98%	4.05%	4.25%	4.04%	3.81%	3.94%	4.15%	4.04%	3.87%	4.14%	4.19%	4.32%	4.51%
Manitoba					4.45%	4.36%	4.21%	4.15%	4.11%	4.15%	4.21%	4.22%	4.23%	4.30%	4.24%	4.17%	4.21%	4.14%	4.10%	4.01%
Saskatchewan					4.51%	4.52%	4.55%	4.59%	4.63%	4.61%	4.59%	4.58%	4.58%	4.60%	4.54%	4.60%	4.61%	4.58%	4.55%	4.56%
Alberta					4.97%	5.12%	5.14%	5.12%	5.34%	5.48%	5.51%	5.48%	5.47%	5.28%	5.13%	5.00%	4.95%	4.94%	5.01%	5.10%
Prairie Average					4.76%	4.83%	4.81%	4.80%	4.93%	5.02%	5.05%	5.03%	5.03%	4.94%	4.83%	4.75%	4.73%	4.71%	4.75%	4.78%
Regional Averages					4.90%	4.93%	4.87%	4.85%	4.93%	5.08%	5.07%	5.06%	5.09%	5.09%	4.96%	4.98%	5.05%	5.03%	5.07%	5.10%

ER SEWE Rates as Percentage of Regional Averages																				
5 Year Rolling Averages of Annual Percentages																				
Geography	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
4610 - Southeast					100.94%	112.31%	107.36%	113.97%	113.47%	112.96%	100.53%	99.44%	95.49%	101.71%	105.25%	105.52%	108.46%	109.80%	108.16%	105.60%
4620 - South Central					105.79%	106.23%	107.00%	109.84%	102.61%	102.33%	103.68%	100.31%	97.00%	100.06%	100.30%	92.93%	101.94%	106.69%	108.48%	108.89%
4630 - Southwest					108.74%	102.48%	99.29%	97.84%	98.65%	98.42%	101.76%	105.20%	107.10%	103.15%	99.92%	101.00%	97.33%	91.90%	91.93%	88.90%
4640 - North Central					92.88%	81.82%	78.73%	75.87%	68.66%	75.14%	72.89%	80.13%	81.11%	89.83%	90.08%	96.27%	94.42%	95.36%	93.51%	90.46%
4650 - Winnipeg					83.72%	80.35%	77.51%	74.05%	71.87%	68.74%	71.75%	72.31%	72.24%	73.12%	75.50%	73.18%	72.25%	72.22%	69.96%	66.56%
4660 - Interlake					112.21%	109.18%	116.15%	128.89%	123.82%	123.56%	122.86%	119.33%	114.98%	119.76%	116.23%	118.22%	117.04%	107.39%	103.77%	105.70%
4670 & 4680 - Parklands & North					84.95%	87.11%	86.34%	83.88%	83.55%	85.51%	86.49%	82.47%	87.42%	84.27%	83.49%	78.65%	79.77%	78.58%	83.28%	81.95%
4710 - Regina - Moose Mountain					78.38%	75.87%	81.68%	83.10%	80.66%	79.09%	79.30%	77.15%	79.63%	81.74%	82.69%	84.23%	83.66%	81.10%	81.70%	81.15%
4720 - Swift Current - Moose Jaw					83.09%	86.63%	87.33%	89.77%	90.07%	88.13%	84.22%	87.30%	87.03%	88.97%	92.92%	97.21%	96.18%	96.55%	93.84%	91.99%
4730 - Saskatoon - Biggar					92.51%	89.91%	87.48%	89.57%	91.88%	88.02%	91.35%	94.92%	94.46%	92.56%	94.83%	91.53%	88.52%	87.95%	86.84%	87.06%
4740 - Yorkton - Melville					100.37%	99.94%	101.08%	99.09%	100.70%	99.49%	97.74%	98.58%	102.21%	104.28%	103.69%	112.37%	112.64%	113.68%	109.01%	103.86%
4750 & 4760 - PA & Northern					113.66%	116.98%	118.99%	119.67%	116.30%	110.44%	107.54%	103.64%	95.78%	95.74%	94.98%	95.87%	96.45%	99.70%	97.94%	99.15%
4810 - Lethbridge - Medicine Hat					103.18%	101.33%	96.59%	97.80%	110.96%	115.39%	121.49%	126.21%	124.53%	118.68%	115.03%	107.64%	100.60%	102.19%	100.94%	100.35%
4820 - Camrose - Drumheller					100.32%	104.70%	106.60%	110.28%	113.95%	112.00%	112.93%	115.74%	114.22%	113.58%	119.38%	128.92%	133.13%	135.98%	135.11%	135.93%
4830 - Calgary					104.78%	110.83%	118.40%	122.17%	124.43%	119.42%	118.44%	114.68%	109.32%	104.37%	103.80%	99.63%	95.55%	96.08%	96.70%	98.10%
4840 - Banff - Jasper - RkyMtnH					131.06%	137.21%	136.32%	124.06%	127.01%	131.97%	128.41%	124.19%	131.46%	129.82%	137.35%	146.49%	153.24%	154.94%	157.94%	153.04%
4850 - Red Deer					123.30%	115.12%	112.69%	103.47%	101.92%	105.93%	103.82%	100.87%	107.28%	101.59%	89.41%	92.53%	94.14%	90.87%	93.36%	106.99%
4860 - Edmonton					94.12%	96.54%	95.04%	93.08%	95.30%	95.40%	95.21%	95.51%	97.63%	94.01%	95.44%	92.22%	90.54%	88.62%	88.83%	87.06%
4870 - Athabasca - GrdPr - PcRvr					115.66%	107.98%	103.79%	101.71%	101.93%	104.46%	119.95%	126.60%	123.69%	121.24%	118.33%	107.90%	102.26%	107.24%	113.51%	118.92%
4880 - Wood Buffalo - Cold Lake					70.35%	77.47%	81.63%	81.92%	82.25%	83.61%	79.66%	75.40%	77.43%	81.51%	81.38%	77.68%	81.87%	83.17%	85.18%	88.35%
Manitoba					90.80%	88.47%	86.43%	85.47%	83.31%	81.76%	83.14%	83.34%	83.23%	84.43%	85.43%	83.66%	83.24%	82.29%	80.99%	78.50%
Saskatchewan					92.09%	91.64%	93.41%	94.58%	93.97%	90.81%	90.67%	90.61%	90.00%	90.39%	91.56%	92.35%	91.17%	90.96%	89.80%	89.39%
Alberta					101.47%	103.91%	105.51%	105.51%	108.45%	107.85%	108.76%	108.30%	107.49%	103.71%	103.34%	100.36%	98.03%	98.08%	98.94%	99.90%
Prairie Average					97.08%	97.88%	98.74%	98.82%	100.00%	98.74%	99.60%	99.45%	98.90%	97.07%	97.35%	95.38%	93.70%	93.54%	93.65%	93.73%
Regional Averages (=100%)					4.90%	4.93%	4.87%	4.85%	4.93%	5.08%	5.07%	5.06%	5.09%	5.09%	4.96%	4.98%	5.05%	5.03%	5.07%	5.10%

ER SEWE Percentage Level of LF15+																				
6 Year Rolling Averages of Annual Percentages																				
Geography	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
4610 - Southeast						5.36%	5.40%	5.41%	5.34%	5.65%	5.48%	4.98%	5.09%	5.04%	5.34%	5.08%	5.30%	5.50%	5.56%	5.51%
4620 - South Central						5.13%	5.39%	5.33%	5.07%	5.11%	5.19%	5.25%	5.09%	4.87%	5.04%	4.72%	5.17%	5.34%	5.34%	5.43%
4630 - Southwest						5.15%	4.88%	4.82%	4.93%	5.09%	5.00%	5.10%	5.32%	5.35%	5.17%	5.03%	4.90%	4.74%	4.70%	4.57%
4640 - North Central						4.45%	3.99%	3.79%	3.53%	3.66%	3.73%	4.00%	4.03%	4.27%	4.57%	4.55%	4.90%	4.65%	4.78%	4.60%
4650 - Winnipeg						4.00%	3.90%	3.69%	3.58%	3.56%	3.61%	3.65%	3.60%	3.69%	3.73%	3.74%	3.66%	3.58%	3.58%	3.46%
4660 - Interlake						5.55%	5.53%	6.04%	6.05%	6.15%	6.16%	6.08%	6.19%	5.92%	5.87%	5.83%	5.82%	5.66%	5.43%	5.28%
4670 & 4680 - Parklands & North						4.24%	4.32%	4.01%	4.24%	4.19%	4.42%	4.21%	4.21%	4.42%	4.22%	4.07%	3.92%	4.03%	4.24%	4.12%
4710 - Regina - Moose Mountain						3.82%	3.85%	3.93%	3.96%	4.09%	3.97%	3.99%	3.99%	4.07%	4.19%	4.12%	4.16%	4.14%	4.15%	4.17%
4720 - Swift Current - Moose Jaw						4.20%	4.18%	4.36%	4.33%	4.50%	4.36%	4.30%	4.50%	4.47%	4.64%	4.66%	4.79%	4.87%	4.75%	4.78%
4730 - Saskatoon - Biggar						4.47%	4.38%	4.34%	4.45%	4.51%	4.54%	4.68%	4.79%	4.76%	4.66%	4.62%	4.55%	4.48%	4.42%	4.43%
4740 - Yorkton - Melville						4.90%	4.98%	4.87%	4.83%	5.09%	4.93%	5.03%	5.09%	5.25%	5.24%	5.38%	5.64%	5.71%	5.52%	5.23%
4750 & 4760 - PA & Northern						5.58%	5.70%	5.84%	5.74%	5.71%	5.48%	5.27%	5.06%	4.96%	4.86%	4.79%	4.79%	4.88%	5.04%	5.01%
4810 - Lethbridge - Medicine Hat						5.07%	4.91%	4.86%	5.23%	5.62%	5.99%	6.07%	6.22%	6.31%	5.82%	5.57%	5.17%	5.18%	5.30%	5.05%
4820 - Camrose - Drumheller						4.99%	5.04%	5.26%	5.72%	5.59%	5.66%	5.62%	5.77%	6.08%	5.85%	6.28%	6.45%	6.60%	6.95%	6.81%
4830 - Calgary						5.24%	5.65%	5.84%	6.01%	6.00%	5.97%	5.93%	5.66%	5.50%	5.18%	5.05%	4.96%	4.86%	4.95%	4.92%
4840 - Banff - Jasper - RkyMtnH						6.42%	6.63%	6.51%	6.24%	6.55%	6.48%	6.23%	6.55%	6.73%	7.01%	6.98%	7.26%	7.81%	7.83%	8.01%
4850 - Red Deer						5.81%	5.58%	5.21%	5.22%	5.39%	5.16%	5.10%	5.18%	5.34%	4.90%	4.51%	4.68%	4.73%	4.74%	5.14%
4860 - Edmonton						4.66%	4.70%	4.60%	4.63%	4.80%	4.84%	4.76%	4.87%	4.85%	4.84%	4.63%	4.55%	4.56%	4.47%	4.55%
4870 - Athabasca - GrdPr - PcRvr						5.38%	5.27%	5.06%	5.09%	5.30%	5.72%	6.17%	6.09%	6.12%	6.01%	5.77%	5.41%	5.25%	5.67%	5.92%
4880 - Wood Buffalo - Cold Lake						3.82%	3.91%	3.87%	3.92%	4.08%	4.31%	3.91%	3.84%	4.06%	4.06%	4.00%	3.99%	4.15%	4.38%	4.36%
Manitoba						4.40%	4.32%	4.19%	4.12%	4.17%	4.20%	4.20%	4.20%	4.25%	4.28%	4.22%	4.19%	4.14%	4.14%	4.03%
Saskatchewan						4.50%	4.52%	4.57%	4.59%	4.67%	4.57%	4.58%	4.59%	4.60%	4.60%	4.56%	4.59%	4.58%	4.57%	4.56%
Alberta						5.02%	5.15%	5.15%	5.28%	5.40%	5.46%	5.44%	5.42%	5.41%	5.22%	5.07%	4.98%	4.97%	5.03%	5.07%
Prairie Average						4.77%	4.83%	4.81%	4.88%	4.98%	5.01%	5.00%	4.99%	5.01%	4.90%	4.79%	4.74%	4.73%	4.77%	4.77%
Regional Averages						4.91%	4.91%	4.88%	4.91%	5.03%	5.05%	5.02%	5.06%	5.10%	5.06%	4.97%	5.00%	5.04%	5.09%	5.07%

ER SEWE Rates as Percentage of Regional Averages																				
6 Year Rolling Averages of Annual Percentages																				
Geography	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
4610 - Southeast						109.13%	110.03%	110.73%	108.80%	112.18%	108.56%	99.27%	100.67%	98.82%	105.48%	102.27%	105.94%	109.30%	109.34%	108.73%
4620 - South Central						104.48%	109.74%	109.13%	103.25%	101.54%	102.75%	104.69%	100.67%	95.38%	99.66%	94.91%	103.23%	105.98%	104.90%	107.07%
4630 - Southwest						104.78%	99.31%	98.73%	100.57%	101.07%	99.05%	101.67%	105.29%	104.88%	102.09%	101.22%	97.94%	94.21%	92.29%	90.15%
4640 - North Central						90.61%	81.22%	77.71%	71.90%	72.83%	73.95%	79.82%	79.74%	83.67%	90.31%	91.60%	97.95%	92.41%	93.96%	90.83%
4650 - Winnipeg						81.42%	79.47%	75.55%	72.96%	70.73%	71.48%	72.73%	71.20%	72.23%	73.70%	75.23%	73.15%	71.12%	70.34%	68.19%
4660 - Interlake						113.01%	112.70%	123.63%	123.38%	122.13%	121.89%	121.15%	122.39%	116.01%	115.93%	117.40%	116.25%	112.46%	106.71%	104.14%
4670 & 4680 - Parklands & North						86.26%	87.92%	82.17%	86.46%	83.35%	87.51%	84.00%	83.23%	86.68%	83.31%	81.82%	78.34%	79.99%	83.24%	81.36%
4710 - Regina - Moose Mountain						77.86%	78.50%	80.52%	80.78%	81.21%	78.63%	79.52%	78.85%	79.75%	82.87%	82.93%	83.19%	82.14%	81.46%	82.37%
4720 - Swift Current - Moose Jaw						85.43%	85.11%	89.25%	88.24%	89.45%	86.31%	85.70%	88.93%	87.63%	91.78%	93.87%	95.77%	96.64%	93.29%	94.32%
4730 - Saskatoon - Biggar						90.91%	89.16%	88.96%	90.76%	89.64%	89.99%	93.39%	94.75%	93.20%	92.07%	92.96%	91.02%	88.94%	86.87%	87.46%
4740 - Yorkton - Melville						99.73%	101.38%	99.74%	98.49%	101.18%	97.54%	100.21%	100.72%	102.83%	103.62%	108.27%	112.76%	113.31%	108.48%	103.27%
4750 & 4760 - PA & Northern						113.65%	116.18%	119.59%	117.04%	113.46%	108.53%	104.99%	100.12%	97.24%	96.05%	96.33%	95.64%	96.82%	99.04%	98.91%
4810 - Lethbridge - Medicine Hat						103.28%	100.03%	99.61%	106.67%	111.68%	118.58%	120.97%	122.92%	123.69%	115.01%	112.16%	103.40%	102.90%	104.11%	99.64%
4820 - Camrose - Drumheller						101.64%	102.68%	107.84%	116.60%	111.17%	112.14%	112.00%	114.18%	119.10%	115.62%	126.29%	129.00%	131.02%	136.46%	134.36%
4830 - Calgary						106.76%	115.16%	119.62%	122.60%	119.23%	118.12%	118.30%	111.96%	107.79%	102.40%	101.56%	99.04%	96.47%	97.32%	97.14%
4840 - Banff - Jasper - RkyMtnH						130.60%	135.07%	133.38%	127.22%	130.19%	128.40%	124.18%	129.41%	131.88%	138.62%	140.48%	145.07%	155.04%	153.86%	158.09%
4850 - Red Deer						118.24%	113.55%	106.65%	106.37%	107.16%	102.09%	101.62%	102.33%	104.70%	96.91%	90.82%	93.47%	94.01%	93.13%	101.44%
4860 - Edmonton						94.97%	95.68%	94.14%	94.33%	95.48%	95.86%	94.83%	96.34%	95.05%	95.59%	93.21%	90.90%	90.61%	87.73%	89.76%
4870 - Athabasca - GrdPr - PcRvr						109.44%	107.38%	103.72%	103.73%	105.31%	113.20%	123.04%	120.40%	119.89%	118.70%	116.22%	108.17%	104.25%	111.44%	116.75%
4880 - Wood Buffalo - Cold Lake						77.82%	79.71%	79.36%	79.86%	80.99%	85.41%	77.93%	75.92%	79.60%	80.28%	80.48%	79.78%	82.38%	86.04%	86.03%
Manitoba						89.60%	87.96%	85.73%	84.07%	82.77%	83.23%	83.67%	83.07%	83.26%	84.51%	84.84%	83.75%	82.20%	81.40%	79.54%
Saskatchewan						91.70%	92.10%	93.61%	93.47%	92.79%	90.52%	91.22%	90.75%	90.03%	90.83%	91.81%	91.65%	91.04%	89.86%	90.00%
Alberta						102.13%	104.81%	105.46%	107.59%	107.30%	108.21%	108.48%	107.12%	106.02%	103.13%	101.95%	99.45%	98.60%	98.91%	99.93%
Prairie Average						97.14%	98.40%	98.62%	99.54%	99.01%	99.25%	99.70%	98.76%	98.06%	96.85%	96.45%	94.73%	93.84%	93.71%	94.05%
Regional Averages (=100%)						4.91%	4.91%	4.88%	4.91%	5.03%	5.05%	5.02%	5.06%	5.10%	5.06%	4.97%	5.00%	5.04%	5.09%	5.07%

ER TE Growth as Percentage of Regional Averages																				
1 Year Change																				
Indicator/Geography	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
4610 - Southeast		0.00%	561.41%	276.97%	2251.47%	310.74%	380.50%	0.00%	-268.88%	223.13%	108.20%	35.59%	456.18%	149.02%	337.39%	170.85%	375.41%	80.72%	175.22%	-28.08%
4620 - South Central		-31.12%	222.95%	-150.53%	0.00%	749.10%	194.01%	209.96%	75.60%	73.80%	224.36%	-117.95%	77.23%	326.95%	806.48%	232.79%	67.13%	760.24%	42.11%	-204.67%
4630 - Southwest		-245.45%	-251.93%	-117.76%	737.36%	-637.21%	84.39%	-134.57%	722.99%	204.16%	-64.37%	-239.87%	75.20%	159.24%	80.33%	-73.17%	263.01%	-93.94%	-218.91%	235.71%
4640 - North Central		537.44%	-254.48%	178.46%	1474.72%	430.25%	480.74%	270.35%	-568.76%	0.00%	-138.34%	215.66%	329.68%	-199.61%	-64.67%	367.21%	-73.16%	-891.55%	260.17%	-21.40%
4650 - Winnipeg		42.31%	237.52%	-56.20%	734.94%	378.83%	50.77%	-8.47%	682.34%	-55.49%	45.50%	232.90%	70.46%	162.87%	-301.14%	88.95%	-44.92%	187.32%	-23.63%	90.38%
4660 - Interlake		20.71%	-73.66%	254.57%	166.17%	-805.81%	-380.50%	295.20%	-596.42%	-15.53%	313.83%	260.01%	76.97%	319.96%	772.41%	120.45%	55.00%	304.28%	108.40%	86.36%
4670 & 4680 - Parklands & North		-67.43%	91.06%	248.48%	811.77%	468.27%	-39.73%	120.58%	-934.39%	70.15%	256.10%	-234.13%	-282.00%	-127.24%	-69.95%	-113.44%	0.00%	-282.40%	389.20%	-176.20%
4710 - Regina - Moose Mountain		-15.49%	-18.46%	29.63%	-516.69%	473.52%	80.38%	73.98%	-100.80%	37.28%	41.47%	197.08%	-82.37%	10.27%	-48.48%	60.37%	23.74%	169.32%	2.65%	0.00%
4720 - Swift Current - Moose Jaw		86.75%	-742.26%	116.89%	2661.94%	824.71%	280.64%	40.19%	662.39%	-145.97%	35.95%	54.01%	-172.65%	124.56%	463.01%	-79.55%	226.44%	-393.03%	147.41%	211.17%
4730 - Saskatoon - Biggar		59.45%	9.56%	-61.25%	587.63%	-90.91%	-70.32%	51.93%	533.37%	80.33%	112.06%	113.93%	48.16%	101.57%	302.99%	128.89%	155.80%	-13.03%	83.09%	84.30%
4740 - Yorkton - Melville		170.02%	-242.24%	-377.14%	-275.01%	-311.46%	-132.41%	48.38%	-755.99%	-40.78%	46.00%	-224.15%	-45.84%	179.96%	1626.63%	266.04%	-248.73%	604.73%	29.56%	84.08%
4750 & 4760 - PA & Northern		-123.38%	-279.93%	26.23%	-1067.67%	55.93%	-64.80%	37.57%	58.09%	-138.75%	222.62%	-62.82%	244.90%	-160.66%	562.01%	-29.33%	187.62%	107.65%	-72.03%	132.54%
4810 - Lethbridge - Medicine Hat		359.29%	441.08%	-206.69%	-1887.15%	-117.46%	148.43%	240.61%	192.49%	36.29%	-64.91%	418.33%	296.46%	-162.37%	-279.09%	-6.19%	323.08%	270.49%	212.49%	0.00%
4820 - Camrose - Drumheller		314.14%	-199.22%	114.12%	-1787.53%	19.74%	264.08%	104.98%	-445.35%	220.80%	-120.77%	187.54%	177.45%	-147.38%	-74.84%	149.63%	184.65%	138.83%	38.91%	274.41%
4830 - Calgary		233.76%	391.01%	83.38%	42.01%	119.60%	81.47%	102.03%	872.81%	334.19%	198.58%	477.59%	196.42%	362.16%	-521.66%	69.50%	124.13%	284.15%	53.43%	392.77%
4840 - Banff - Jasper - RkyMtnH		-22.79%	448.42%	504.89%	-4407.20%	-179.46%	175.74%	216.59%	471.10%	327.05%	21.65%	65.23%	388.62%	-351.17%	-212.33%	16.23%	-371.33%	477.84%	293.56%	98.62%
4850 - Red Deer		175.71%	-264.98%	438.72%	2808.98%	27.06%	187.81%	178.30%	500.56%	108.80%	296.58%	658.56%	-193.39%	317.35%	-304.30%	98.84%	241.39%	22.11%	206.32%	204.82%
4860 - Edmonton		157.46%	206.74%	94.51%	-348.09%	22.72%	-120.07%	77.62%	540.07%	-9.92%	267.19%	148.11%	93.16%	136.29%	-451.98%	111.09%	186.31%	262.78%	-51.60%	127.59%
4870 - Athabasca - GrdPr - PcRvr		155.62%	678.86%	347.52%	-126.45%	340.98%	398.87%	300.44%	574.53%	133.64%	-118.44%	108.95%	-46.08%	162.82%	-137.98%	67.47%	116.76%	85.50%	317.06%	149.41%
4880 - Wood Buffalo - Cold Lake		192.99%	1038.55%	255.19%	138.80%	-79.15%	0.00%	-225.69%	-215.73%	556.82%	316.73%	-294.56%	291.46%	635.36%	-484.84%	353.38%	207.68%	-82.00%	6.58%	258.19%
Manitoba		15.38%	159.23%	12.38%	803.66%	228.45%	64.78%	32.36%	301.38%	9.90%	75.64%	118.21%	83.62%	146.01%	-49.65%	86.68%	31.19%	108.34%	25.04%	55.34%
Saskatchewan		13.76%	-174.20%	-27.81%	116.89%	196.19%	9.27%	55.92%	133.90%	-14.89%	98.22%	66.63%	14.50%	29.22%	382.21%	64.73%	95.04%	74.16%	30.91%	80.29%
Alberta		205.78%	298.87%	117.59%	-351.12%	57.48%	56.44%	116.12%	530.37%	167.36%	157.27%	291.19%	140.11%	187.89%	-405.94%	91.12%	156.76%	233.08%	59.73%	231.79%
Prairie Average		119.98%	166.70%	63.41%	7.88%	124.10%	48.83%	85.24%	400.73%	96.92%	128.18%	211.13%	104.61%	149.76%	-187.54%	85.60%	119.76%	179.95%	47.71%	170.12%
Regional Averages (=100%)		1.42%	0.79%	1.73%	-0.17%	-0.60%	1.20%	2.39%	0.58%	1.76%	2.10%	1.38%	1.61%	1.38%	-0.73%	2.68%	1.75%	1.02%	2.56%	2.09%

ER TE Growth as Percentage of Regional Averages																				
2 Year Rolling Average																				
Indicator/Geography	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
4610 - Southeast			200.08%	368.36%	51.40%	752.70%	466.29%	125.89%	-52.08%	98.65%	161.09%	79.08%	261.04%	319.19%	-71.92%	105.04%	256.78%	269.56%	149.67%	83.20%
4620 - South Central			59.33%	-34.42%	-167.62%	600.27%	-393.43%	205.41%	184.54%	73.96%	155.39%	85.38%	-13.52%	193.98%	-258.22%	0.00%	167.93%	326.09%	249.41%	-69.46%
4630 - Southwest			-242.66%	-155.58%	-209.82%	-336.15%	855.26%	-61.43%	27.11%	335.99%	56.29%	-131.98%	-71.15%	114.68%	251.52%	-132.47%	57.19%	130.41%	-182.23%	-20.75%
4640 - North Central			243.98%	39.29%	33.12%	672.30%	542.33%	347.04%	100.54%	-139.11%	-74.32%	0.00%	280.11%	80.66%	-361.27%	541.40%	189.22%	-370.80%	-84.78%	132.82%
4650 - Winnipeg			112.05%	34.74%	-141.86%	467.30%	-292.59%	11.20%	125.08%	123.73%	-0.83%	120.09%	145.59%	113.77%	707.49%	241.92%	35.42%	40.05%	36.17%	27.22%
4660 - Interlake			-13.17%	147.84%	264.58%	-606.02%	0.00%	59.24%	114.17%	-157.10%	161.12%	297.13%	161.76%	190.58%	-231.64%	-134.71%	94.69%	148.10%	166.93%	99.33%
4670 & 4680 - Parklands & North			-10.71%	196.81%	184.47%	555.11%	-573.86%	65.73%	-89.06%	-178.86%	170.93%	55.69%	-252.99%	-207.71%	-197.39%	-133.09%	-68.20%	-104.11%	190.42%	127.23%
4710 - Regina - Moose Mountain			-16.41%	14.25%	89.57%	264.99%	-331.60%	75.69%	39.74%	3.08%	39.24%	103.33%	45.17%	-39.67%	78.09%	103.31%	45.76%	77.72%	50.23%	1.46%
4720 - Swift Current - Moose Jaw			-212.65%	-155.04%	-165.67%	1237.81%	-299.87%	120.16%	161.92%	48.60%	-47.05%	43.00%	-68.10%	-37.17%	-270.54%	-283.86%	39.13%	-7.17%	-10.68%	179.15%
4730 - Saskatoon - Biggar			41.22%	-38.36%	-131.53%	61.82%	-54.57%	10.57%	146.43%	192.42%	97.29%	113.07%	78.35%	73.05%	-132.37%	61.25%	140.73%	93.78%	55.77%	84.22%
4740 - Yorkton - Melville			19.65%	-324.12%	-391.98%	-313.43%	40.90%	-12.52%	-109.15%	-214.11%	6.13%	-61.89%	-126.47%	57.57%	-1524.34%	-290.54%	55.36%	55.62%	195.01%	54.18%
4750 & 4760 - PA & Northern			-176.43%	-69.14%	146.04%	-197.74%	-195.84%	3.06%	41.63%	-89.98%	54.07%	107.15%	100.80%	54.92%	-980.31%	-253.26%	55.41%	159.86%	-21.50%	18.64%
4810 - Lethbridge - Medicine Hat			393.54%	-8.01%	-31.97%	-527.29%	440.65%	210.08%	233.29%	74.54%	-18.72%	124.20%	359.20%	81.23%	-39.18%	97.35%	122.84%	310.06%	233.69%	116.82%
4820 - Camrose - Drumheller			125.49%	14.19%	325.65%	-391.16%	539.14%	158.57%	-3.84%	52.10%	32.23%	0.00%	183.16%	25.71%	-235.85%	239.21%	165.32%	169.82%	67.89%	145.46%
4830 - Calgary			292.53%	178.68%	88.21%	105.35%	46.06%	94.67%	255.39%	476.15%	263.74%	315.26%	330.73%	277.75%	1415.83%	299.57%	91.40%	185.67%	120.47%	207.61%
4840 - Banff - Jasper - RkyMtnH			144.82%	490.90%	1084.32%	-1159.14%	565.53%	203.51%	270.48%	366.63%	159.86%	38.83%	239.23%	37.35%	-530.58%	103.88%	-136.59%	-70.58%	357.02%	208.86%
4850 - Red Deer			14.89%	207.69%	159.31%	660.94%	369.57%	181.98%	244.75%	206.20%	211.46%	453.67%	189.25%	37.47%	1054.15%	257.32%	156.66%	161.44%	154.55%	209.97%
4860 - Edmonton			175.40%	128.58%	143.78%	-61.03%	-278.39%	10.55%	169.09%	124.44%	138.80%	221.55%	118.65%	113.84%	825.05%	332.73%	142.07%	218.08%	36.98%	28.00%
4870 - Athabasca - GrdPr - PcRvr			346.17%	456.48%	401.60%	245.00%	471.28%	338.92%	361.35%	243.85%	-4.82%	-28.85%	24.97%	49.61%	515.72%	147.97%	87.21%	106.14%	253.67%	246.64%
4880 - Wood Buffalo - Cold Lake			502.90%	506.86%	268.39%	-31.64%	83.14%	-148.33%	-221.37%	358.81%	438.07%	65.31%	14.21%	463.16%	1985.76%	696.98%	301.66%	100.25%	-18.71%	119.40%
Manitoba			66.65%	57.62%	-73.94%	363.76%	-104.34%	42.87%	84.90%	81.26%	45.17%	92.67%	99.56%	113.14%	375.31%	140.75%	64.63%	59.92%	49.06%	38.70%
Saskatchewan			-53.46%	-72.28%	-43.64%	183.54%	-186.64%	39.86%	71.34%	21.52%	45.91%	85.59%	38.36%	21.29%	-377.42%	-57.29%	76.86%	88.01%	43.48%	53.23%
Alberta			240.40%	173.42%	169.97%	-33.70%	59.01%	95.51%	199.14%	258.80%	162.49%	212.87%	211.30%	163.88%	886.53%	285.89%	117.80%	187.60%	110.33%	138.20%
Prairie Average			59.41%	42.74%	-0.86%	99.44%	103.64%	56.03%	77.62%	72.54%	68.86%	83.40%	55.84%	68.95%	215.47%	119.90%	46.99%	66.34%	34.20%	76.16%
Regional Averages (=100%)			2.23%	2.57%	1.56%	-0.74%	0.57%	3.64%	2.97%	2.35%	3.90%	3.50%	3.02%	2.99%	0.63%	1.92%	4.47%	2.77%	3.57%	4.66%

ER TE Growth as Percentage of Regional Averages																				
3 Year Rolling Average																				
Indicator/Geography	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
4610 - Southeast				234.91%	218.57%	-110.30%	-312.77%	88.79%	69.98%	48.75%	103.19%	127.91%	200.39%	228.78%	303.76%	122.37%	234.78%	224.84%	230.08%	83.19%
4620 - South Central				-32.78%	-36.55%	-719.37%	-548.74%	89.90%	187.49%	143.94%	145.07%	81.36%	82.92%	92.47%	-18.37%	134.24%	31.66%	287.44%	191.03%	74.95%
4630 - Southwest				-181.95%	-214.75%	42.21%	870.67%	49.56%	43.17%	93.03%	143.36%	-22.51%	-67.30%	0.00%	125.19%	-11.89%	52.56%	28.53%	-41.30%	-33.68%
4640 - North Central				215.68%	-62.57%	-213.21%	122.92%	327.01%	211.18%	62.73%	-135.13%	0.00%	103.11%	123.98%	128.30%	218.54%	241.17%	-25.57%	-80.07%	-60.88%
4650 - Winnipeg				37.14%	-15.03%	-456.61%	-709.30%	-62.40%	102.62%	56.76%	86.54%	59.95%	104.61%	152.71%	251.33%	208.04%	102.61%	63.95%	9.29%	56.31%
4660 - Interlake				101.83%	144.90%	942.85%	-69.25%	237.02%	-31.81%	65.30%	58.69%	189.99%	228.59%	215.49%	-10.98%	51.09%	-44.22%	135.48%	130.92%	138.45%
4670 & 4680 - Parklands & North				100.63%	149.27%	0.00%	-1127.70%	-15.61%	-73.40%	-30.31%	20.79%	60.32%	-52.06%	-209.77%	-254.14%	-126.87%	-68.65%	-105.98%	127.52%	50.62%
4710 - Regina - Moose Mountain				3.63%	51.43%	-151.74%	-251.22%	-4.86%	50.97%	38.75%	20.95%	80.82%	43.56%	34.15%	-37.12%	63.26%	64.70%	69.09%	41.58%	31.56%
4720 - Swift Current - Moose Jaw				-69.62%	-343.55%	-761.76%	-1508.75%	-25.38%	197.08%	44.46%	42.37%	-20.69%	-25.58%	-8.47%	-197.09%	-113.65%	-45.44%	-42.30%	66.91%	70.45%
4730 - Saskatoon - Biggar				-3.80%	-81.47%	-156.80%	-320.25%	31.17%	81.76%	122.37%	155.23%	102.08%	92.54%	86.07%	-3.12%	77.15%	105.93%	111.54%	89.52%	66.58%
4740 - Yorkton - Melville				-151.97%	-326.50%	-450.58%	171.91%	46.72%	-112.90%	-82.70%	-91.62%	-53.95%	-56.11%	-32.44%	-457.89%	-96.05%	-260.62%	159.60%	43.24%	155.53%
4750 & 4760 - PA & Northern				-86.65%	0.00%	199.77%	166.86%	-7.46%	10.52%	-25.97%	54.49%	22.94%	152.32%	17.24%	-111.63%	-207.30%	-46.45%	65.35%	46.73%	34.73%
4810 - Lethbridge - Medicine Hat				120.79%	123.34%	20.58%	1420.73%	281.92%	208.60%	159.93%	8.21%	94.31%	181.20%	189.49%	199.97%	-12.35%	205.41%	152.42%	271.44%	146.84%
4820 - Camrose - Drumheller				119.76%	140.67%	511.29%	1519.72%	189.52%	72.28%	79.17%	-29.72%	73.03%	55.50%	76.71%	58.43%	73.25%	214.45%	161.63%	107.56%	145.75%
4830 - Calgary				199.80%	186.64%	67.25%	46.69%	90.90%	203.89%	292.33%	351.95%	330.33%	282.56%	350.66%	550.59%	328.21%	216.41%	128.85%	123.19%	225.96%
4840 - Banff - Jasper - RkyMtnH				304.04%	868.72%	1874.29%	2684.43%	287.16%	243.51%	299.45%	202.71%	135.20%	149.60%	46.03%	118.83%	-87.76%	-125.02%	-27.69%	101.60%	265.11%
4850 - Red Deer				197.44%	13.36%	239.29%	-679.74%	216.53%	228.78%	195.88%	252.77%	340.44%	238.34%	234.26%	149.01%	283.58%	252.17%	131.39%	187.13%	176.39%
4860 - Edmonton				139.12%	161.70%	217.08%	-245.50%	8.33%	82.66%	101.66%	193.25%	142.35%	182.03%	125.26%	301.79%	249.43%	265.08%	166.92%	86.75%	70.66%
4870 - Athabasca - GrdPr - PcRvr				352.16%	494.58%	423.04%	711.43%	337.41%	378.77%	280.21%	69.17%	24.75%	-33.89%	68.33%	110.96%	153.20%	132.95%	87.15%	211.69%	219.16%
4880 - Wood Buffalo - Cold Lake				399.83%	527.20%	482.74%	57.84%	-166.22%	-155.13%	54.27%	347.73%	231.37%	137.65%	209.05%	792.17%	693.51%	470.51%	227.36%	55.20%	82.31%
Manitoba				42.22%	4.08%	-258.17%	-478.47%	5.96%	78.37%	56.73%	78.42%	64.40%	90.01%	115.09%	166.54%	141.90%	87.70%	73.04%	43.27%	51.48%
Saskatchewan				-41.35%	-84.77%	-190.32%	-308.51%	8.88%	52.68%	38.89%	57.26%	51.29%	62.87%	35.47%	-95.96%	-20.84%	14.78%	76.51%	60.81%	57.23%
Alberta				186.07%	209.82%	237.18%	229.12%	104.78%	156.55%	189.82%	213.12%	199.65%	191.82%	206.98%	354.71%	244.54%	225.43%	140.92%	127.38%	157.70%
Prairie Average				103.60%	100.07%	34.93%	-41.62%	63.10%	118.12%	129.70%	152.23%	140.74%	144.92%	154.48%	230.41%	173.86%	158.07%	115.49%	98.24%	118.46%
Regional Averages (=100%)				4.03%	2.42%	0.97%	0.41%	2.98%	4.24%	4.76%	4.50%	5.32%	5.15%	4.41%	2.26%	3.36%	3.72%	5.51%	5.34%	5.69%

ER TE Growth as Percentage of Regional Averages																				
4 Year Rolling Average																				
Indicator/Geography	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
4610 - Southeast					136.46%	182.63%	160.39%	-44.89%	29.66%	115.64%	66.91%	86.41%	208.27%	189.81%	198.51%	232.07%	210.05%	204.37%	214.13%	154.81%
4620 - South Central					-34.08%	-290.11%	-221.27%	94.52%	87.58%	154.22%	171.24%	80.18%	79.95%	135.25%	-54.83%	114.59%	109.97%	191.62%	209.85%	73.12%
4630 - Southwest					-219.01%	-87.42%	66.09%	7.35%	159.65%	90.55%	43.53%	48.79%	0.00%	-20.33%	-15.74%	15.94%	80.34%	20.75%	-50.68%	34.70%
4640 - North Central					154.14%	-220.75%	166.94%	247.00%	172.47%	147.64%	0.00%	-54.84%	75.50%	36.40%	160.39%	257.30%	114.30%	-20.04%	63.44%	-62.61%
4650 - Winnipeg					6.01%	-142.78%	-177.25%	-108.75%	55.83%	54.93%	53.08%	121.36%	61.97%	116.92%	244.07%	161.79%	117.78%	123.14%	35.57%	31.84%
4660 - Interlake					98.30%	463.29%	190.51%	238.56%	95.01%	-26.69%	142.61%	106.16%	163.03%	251.88%	89.78%	58.74%	51.68%	29.92%	128.34%	118.75%
4670 & 4680 - Parklands & North					67.69%	39.50%	-22.14%	-64.75%	-162.95%	-31.58%	55.48%	-39.17%	-21.05%	-66.17%	-236.32%	-169.89%	-81.66%	-113.81%	43.65%	38.35%
4710 - Regina - Moose Mountain					26.39%	-88.06%	-23.76%	25.76%	-20.28%	46.69%	39.36%	61.95%	41.42%	36.01%	50.14%	15.16%	48.87%	88.64%	47.61%	29.56%
4720 - Swift Current - Moose Jaw					-185.46%	-700.71%	-195.97%	-184.71%	84.77%	91.85%	41.61%	44.70%	-54.74%	5.68%	-100.43%	-128.09%	0.00%	-119.58%	16.70%	108.35%
4730 - Saskatoon - Biggar					-29.59%	-78.76%	-108.74%	-2.70%	112.80%	81.30%	119.83%	145.27%	88.79%	93.99%	40.44%	66.82%	103.35%	80.69%	103.24%	88.19%
4740 - Yorkton - Melville					-146.69%	-338.56%	-272.15%	65.80%	-84.54%	-90.21%	-43.41%	-118.92%	-50.98%	-7.26%	-352.65%	-77.74%	-142.68%	-87.45%	118.12%	54.64%
4750 & 4760 - PA & Northern					-45.04%	-18.21%	52.58%	55.88%	3.11%	-33.11%	48.62%	26.14%	74.11%	82.30%	-90.53%	-64.89%	-74.81%	-13.75%	20.73%	70.98%
4810 - Lethbridge - Medicine Hat					212.08%	202.57%	92.07%	418.78%	269.06%	157.31%	88.65%	103.62%	142.59%	103.85%	283.96%	85.69%	100.13%	225.24%	175.63%	192.97%
4820 - Camrose - Drumheller					206.40%	179.46%	383.17%	312.23%	82.43%	116.62%	16.47%	20.54%	97.42%	11.61%	106.13%	106.33%	110.70%	201.78%	122.71%	157.10%
4830 - Calgary					205.72%	206.23%	75.77%	92.99%	220.41%	247.97%	268.99%	393.60%	302.60%	305.69%	533.88%	286.76%	257.55%	237.36%	105.20%	203.90%
4840 - Banff - Jasper - RkyMtnH					532.32%	1220.04%	954.24%	588.11%	322.23%	275.02%	212.99%	169.29%	197.60%	37.59%	97.03%	61.78%	-177.55%	0.00%	72.26%	101.12%
4850 - Red Deer					72.69%	8.84%	214.12%	48.78%	266.71%	194.60%	232.42%	360.68%	205.05%	259.17%	343.59%	120.52%	271.35%	204.32%	158.55%	195.64%
4860 - Edmonton					160.69%	206.25%	28.82%	29.63%	94.22%	54.80%	154.42%	183.00%	130.56%	172.36%	242.01%	197.34%	228.38%	271.81%	95.21%	98.77%
4870 - Athabasca - GrdPr - PcRvr					372.40%	530.01%	420.60%	363.08%	383.68%	309.84%	151.75%	78.20%	8.02%	6.93%	108.88%	86.08%	139.85%	124.40%	163.57%	196.71%
4880 - Wood Buffalo - Cold Lake					408.60%	726.55%	215.98%	-182.66%	-171.86%	42.61%	135.44%	183.03%	249.87%	248.31%	351.67%	573.69%	532.41%	350.60%	156.17%	113.11%
Manitoba					8.17%	-69.06%	-80.31%	-41.89%	53.64%	57.77%	62.41%	87.50%	68.49%	101.66%	146.70%	121.86%	102.31%	93.47%	57.62%	46.49%
Saskatchewan					-48.01%	-174.72%	-80.08%	2.33%	29.06%	32.41%	56.92%	59.02%	42.19%	55.10%	-34.00%	-9.22%	18.29%	27.82%	61.91%	66.27%
Alberta					209.93%	257.92%	138.28%	131.83%	175.66%	161.27%	182.10%	234.66%	186.42%	191.89%	332.26%	210.21%	214.39%	232.70%	115.62%	159.35%
Prairie Average					107.33%	91.00%	42.92%	65.86%	118.50%	112.14%	130.14%	167.08%	132.15%	146.01%	222.45%	150.38%	154.49%	166.06%	94.12%	119.59%
Regional Averages (=100%)					3.88%	1.83%	2.16%	2.83%	3.57%	6.06%	6.93%	5.97%	7.04%	6.64%	3.72%	5.07%	5.22%	4.71%	8.14%	7.51%

ER TE Growth as Percentage of Regional Averages																				
5 Year Rolling Average																				
Indicator/Geography	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
4610 - Southeast						102.16%	265.63%	74.38%	-81.82%	93.14%	114.87%	60.67%	167.53%	198.32%	165.81%	187.66%	274.52%	190.11%	198.12%	161.56%
4620 - South Central						-175.03%	-101.85%	0.00%	91.35%	82.72%	176.39%	118.23%	79.13%	121.09%	43.28%	62.20%	101.29%	223.13%	138.92%	116.59%
4630 - Southwest						-153.41%	-19.73%	-39.41%	127.90%	175.92%	49.50%	-4.74%	54.06%	25.59%	-32.52%	-38.69%	78.32%	51.14%	-63.87%	5.69%
4640 - North Central						99.66%	49.82%	221.20%	102.32%	114.03%	70.50%	35.13%	24.30%	28.15%	48.92%	250.18%	166.48%	-58.76%	77.12%	45.30%
4650 - Winnipeg						-62.04%	-66.35%	-86.38%	21.09%	18.46%	52.53%	82.65%	109.95%	78.16%	170.89%	178.14%	105.54%	130.86%	70.24%	46.66%
4660 - Interlake						268.89%	115.38%	246.12%	90.58%	57.58%	59.08%	162.91%	99.47%	191.07%	171.09%	101.85%	57.01%	94.19%	57.57%	120.01%
4670 & 4680 - Parklands & North						-7.29%	7.92%	51.33%	-207.85%	-86.19%	40.78%	5.66%	-88.09%	-37.41%	-65.87%	-176.37%	-123.67%	-112.37%	55.61%	-2.45%
4710 - Regina - Moose Mountain						-55.85%	-21.68%	26.76%	4.27%	-1.34%	45.33%	65.10%	30.15%	35.68%	46.44%	53.60%	17.06%	69.18%	57.81%	37.40%
4720 - Swift Current - Moose Jaw						-359.26%	-324.84%	-71.13%	-47.49%	7.01%	77.47%	43.00%	-2.48%	-25.66%	-50.86%	-88.30%	-39.96%	-64.17%	-28.12%	56.21%
4730 - Saskatoon - Biggar						-18.71%	-74.85%	-24.40%	87.36%	101.83%	89.99%	117.88%	123.62%	90.19%	65.63%	76.46%	89.18%	84.10%	81.86%	99.49%
4740 - Yorkton - Melville						-120.38%	-252.95%	-102.84%	-74.96%	-68.79%	-55.47%	-70.84%	-101.15%	-13.94%	-207.42%	-105.47%	-116.71%	-27.81%	-46.19%	111.34%
4750 & 4760 - PA & Northern						-63.40%	-36.54%	43.89%	56.22%	-43.24%	31.22%	29.09%	72.38%	33.63%	19.20%	-62.94%	-1.57%	-45.61%	-33.80%	43.42%
4810 - Lethbridge - Medicine Hat						274.54%	182.87%	168.67%	383.14%	190.86%	97.95%	144.68%	146.31%	88.27%	153.02%	158.26%	147.21%	130.12%	226.50%	137.96%
4820 - Camrose - Drumheller						240.78%	216.02%	236.05%	177.17%	128.62%	53.07%	44.34%	53.56%	54.61%	22.28%	123.83%	126.37%	116.46%	144.28%	157.15%
4830 - Calgary						220.33%	157.60%	88.37%	227.65%	263.27%	241.26%	311.81%	366.06%	318.85%	419.59%	336.90%	244.52%	267.81%	172.96%	168.48%
4840 - Banff - Jasper - RkyMtnH						670.43%	819.41%	576.65%	579.63%	331.95%	209.39%	186.00%	220.94%	97.83%	68.89%	61.92%	-51.40%	-77.54%	102.49%	77.78%
4850 - Red Deer						81.10%	79.81%	195.06%	125.73%	215.19%	228.19%	314.23%	230.46%	226.58%	334.15%	240.49%	152.19%	230.82%	210.00%	171.10%
4860 - Edmonton						186.08%	74.79%	53.46%	116.11%	58.95%	110.87%	152.72%	163.56%	131.03%	255.04%	186.81%	195.23%	238.82%	154.00%	102.47%
4870 - Athabasca - GrdPr - PcRvr						370.36%	492.26%	363.30%	407.32%	303.22%	192.75%	143.44%	50.54%	32.89%	24.82%	90.48%	93.33%	131.82%	196.95%	162.57%
4880 - Wood Buffalo - Cold Lake						501.05%	437.27%	-21.09%	-185.72%	56.81%	114.34%	58.02%	209.68%	325.06%	347.61%	362.97%	485.07%	427.70%	227.53%	181.27%
Manitoba						-32.06%	-16.24%	-20.93%	15.36%	38.76%	62.60%	71.02%	86.29%	80.79%	120.37%	120.61%	97.04%	104.11%	69.07%	56.92%
Saskatchewan						-91.98%	-101.60%	-8.93%	24.46%	14.31%	49.47%	57.73%	48.91%	39.44%	12.93%	6.86%	17.09%	27.50%	28.77%	65.61%
Alberta						237.52%	178.63%	125.52%	201.71%	174.13%	163.05%	202.02%	215.44%	187.10%	271.23%	230.35%	196.67%	221.42%	172.37%	141.88%
Prairie Average						103.69%	74.43%	64.07%	123.19%	111.29%	117.67%	143.69%	153.67%	134.72%	188.84%	164.10%	141.90%	160.82%	124.46%	110.81%
Regional Averages (=100%)						3.27%	3.04%	4.66%	3.42%	5.40%	8.21%	8.50%	7.69%	8.58%	5.92%	6.56%	6.96%	6.24%	7.34%	10.36%

ER TE Growth as Percentage of Regional Averages																				
6 Year Rolling Average																				
Indicator/Geography	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
4610 - Southeast							178.65%	145.48%	35.47%	19.32%	98.20%	101.68%	125.65%	164.23%	178.61%	168.26%	231.80%	250.76%	190.39%	144.66%
4620 - South Central							-77.94%	31.88%	8.26%	84.75%	124.29%	128.64%	111.30%	117.39%	49.23%	101.61%	62.42%	191.55%	170.88%	57.26%
4630 - Southwest							-89.66%	-68.44%	42.65%	154.25%	106.28%	6.22%	7.85%	69.61%	20.18%	-43.63%	22.98%	55.45%	-29.24%	0.00%
4640 - North Central							204.33%	145.53%	127.32%	66.44%	40.79%	91.22%	82.46%	-10.09%	36.62%	147.68%	175.58%	18.08%	31.02%	54.11%
4650 - Winnipeg							-31.65%	-39.92%	-4.94%	-4.98%	25.97%	78.27%	80.32%	117.65%	114.34%	144.41%	127.18%	117.29%	84.71%	74.45%
4660 - Interlake							84.31%	194.84%	145.29%	53.48%	131.08%	87.94%	148.73%	133.93%	124.28%	155.09%	90.72%	89.78%	99.43%	63.65%
4670 & 4680 - Parklands & North							-15.83%	56.42%	-59.09%	-113.21%	6.17%	0.00%	-39.84%	-90.84%	-34.32%	-77.32%	-136.16%	-140.29%	25.42%	2.66%
4710 - Regina - Moose Mountain							-19.40%	19.79%	12.55%	15.24%	10.55%	66.81%	40.27%	26.61%	43.28%	50.01%	46.45%	36.62%	49.48%	44.25%
4720 - Swift Current - Moose Jaw							-194.00%	-162.31%	7.00%	-78.82%	15.04%	72.97%	7.50%	16.46%	-69.55%	-57.57%	-24.19%	-83.33%	-4.30%	23.48%
4730 - Saskatoon - Biggar							-32.15%	-19.13%	36.01%	84.37%	105.69%	92.62%	105.98%	119.26%	67.69%	84.73%	92.76%	75.72%	84.44%	82.11%
4740 - Yorkton - Melville							-120.98%	-119.30%	-169.72%	-61.95%	-36.91%	-76.64%	-65.45%	-59.31%	-163.23%	-68.20%	-129.15%	-30.73%	-11.18%	-17.68%
4750 & 4760 - PA & Northern							-62.77%	-4.00%	45.34%	-10.74%	29.46%	17.05%	63.54%	34.88%	-16.83%	3.86%	-11.51%	12.31%	-52.30%	2.25%
4810 - Lethbridge - Medicine Hat							241.74%	209.59%	172.04%	262.53%	116.67%	145.80%	172.17%	94.65%	123.35%	100.59%	195.70%	165.85%	157.91%	173.38%
4820 - Camrose - Drumheller							250.10%	166.51%	155.01%	193.29%	56.15%	72.05%	65.67%	21.65%	66.42%	61.03%	136.76%	129.02%	94.01%	176.48%
4830 - Calgary							182.69%	132.38%	177.55%	268.18%	251.35%	282.76%	297.36%	364.50%	406.88%	307.84%	291.33%	254.77%	206.47%	228.72%
4840 - Banff - Jasper - RkyMtnH							542.18%	565.35%	575.94%	507.34%	244.59%	186.11%	224.81%	122.37%	127.26%	51.35%	-31.87%	13.96%	26.10%	101.52%
4850 - Red Deer							110.03%	122.40%	232.40%	119.56%	245.90%	301.42%	221.80%	247.09%	279.13%	260.14%	243.28%	135.35%	230.60%	212.19%
4860 - Edmonton							100.72%	75.16%	107.82%	71.96%	118.75%	115.64%	143.06%	158.73%	188.38%	209.95%	187.33%	207.61%	150.94%	148.79%
4870 - Athabasca - GrdPr - PcRvr							387.09%	418.43%	395.11%	315.39%	178.66%	179.20%	110.70%	67.17%	48.73%	37.46%	95.35%	92.68%	191.85%	187.98%
4880 - Wood Buffalo - Cold Lake							362.55%	129.33%	-42.01%	53.60%	131.32%	50.26%	96.13%	284.07%	409.53%	362.72%	333.22%	407.52%	303.39%	239.73%
Manitoba							-6.13%	4.98%	14.08%	13.30%	49.18%	69.96%	72.77%	94.88%	92.47%	108.97%	100.05%	99.03%	80.97%	65.53%
Saskatchewan							-64.16%	-32.30%	6.66%	10.87%	37.73%	51.21%	50.22%	45.15%	6.35%	28.50%	24.98%	24.40%	28.43%	39.87%
Alberta							188.07%	150.58%	172.49%	190.76%	172.38%	183.12%	193.16%	211.60%	246.24%	214.09%	215.03%	204.60%	175.46%	188.77%
Prairie Average							88.47%	78.32%	101.83%	113.75%	117.36%	131.20%	137.49%	152.60%	165.32%	155.60%	154.03%	148.46%	128.33%	135.67%
Regional Averages (=100%)							4.52%	5.55%	5.26%	5.27%	7.54%	9.81%	10.26%	9.26%	7.91%	8.83%	8.50%	8.01%	8.87%	9.59%

ER FTE Growth as Percentage of Regional Averages																				
1 Year Change																				
Indicator/Geography	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
4610 - Southeast		58.8%	583.4%	124.8%	320.2%	177.0%	440.4%	64.1%	-105.7%	-84.0%	334.0%	-18.8%	374.2%	115.3%	2278.6%	255.4%	372.2%	20.8%	141.3%	57.3%
4620 - South Central		-289.2%	383.9%	-303.3%	117.9%	410.2%	410.1%	215.7%	380.3%	85.4%	151.0%	194.0%	108.4%	151.2%	4283.5%	274.4%	-124.6%	668.9%	77.2%	-62.0%
4630 - Southwest		-85.0%	-363.2%	-474.3%	82.6%	-63.6%	76.6%	0.0%	158.9%	349.1%	-35.2%	-302.4%	188.2%	172.5%	-2764.8%	-172.5%	200.8%	39.4%	-297.6%	248.1%
4640 - North Central		386.9%	-405.9%	292.5%	550.8%	148.7%	675.4%	219.9%	0.0%	-121.5%	21.0%	111.9%	316.6%	-198.4%	-1591.0%	269.3%	160.6%	-733.4%	113.8%	169.4%
4650 - Winnipeg		40.1%	220.1%	-137.5%	381.2%	188.6%	69.3%	29.4%	333.2%	-49.2%	57.2%	282.1%	38.5%	171.9%	-522.4%	94.1%	-30.0%	233.2%	-39.0%	28.6%
4660 - Interlake		-207.2%	140.1%	295.3%	303.2%	-345.3%	-338.9%	301.3%	-239.4%	-17.2%	267.6%	154.4%	32.5%	230.2%	3558.6%	198.9%	124.7%	-23.6%	180.1%	0.0%
4670 & 4680 - Parklands & North		-244.5%	0.0%	473.0%	276.3%	152.0%	-80.8%	93.0%	-190.2%	-30.6%	165.7%	-35.3%	-338.0%	31.2%	-208.8%	-216.3%	-26.7%	-131.2%	330.6%	-159.2%
4710 - Regina - Moose Mountain		37.8%	-104.1%	-61.0%	-8.9%	190.5%	25.4%	148.3%	-211.6%	136.4%	49.4%	272.1%	-139.6%	65.9%	-408.8%	-5.0%	57.4%	304.2%	-71.9%	86.8%
4720 - Swift Current - Moose Jaw		77.7%	-768.9%	384.2%	476.6%	474.0%	47.3%	120.8%	388.4%	-36.7%	33.2%	73.6%	-75.4%	157.4%	2056.1%	-113.1%	113.1%	-254.1%	217.8%	46.6%
4730 - Saskatoon - Biggar		-16.1%	284.6%	-274.5%	286.1%	0.0%	63.8%	85.1%	341.0%	90.7%	123.3%	54.6%	28.1%	158.9%	1902.4%	128.5%	114.8%	-122.7%	179.8%	78.1%
4740 - Yorkton - Melville		196.2%	-294.7%	-263.1%	-89.0%	67.3%	-137.5%	107.5%	-462.6%	-81.1%	166.5%	151.5%	-191.7%	62.9%	5444.5%	177.6%	-109.3%	520.6%	61.8%	-20.8%
4750 & 4760 - PA & Northern		-315.8%	-396.6%	-54.1%	-99.5%	43.0%	-65.6%	147.1%	34.2%	-28.5%	106.3%	-33.5%	269.7%	-92.1%	2800.8%	-16.3%	105.1%	289.3%	-154.6%	190.0%
4810 - Lethbridge - Medicine Hat		431.6%	355.8%	-320.2%	-299.4%	0.0%	-314.2%	313.4%	-106.0%	177.6%	-59.8%	261.5%	397.3%	-170.0%	-2742.1%	-148.0%	437.8%	247.2%	259.9%	-20.6%
4820 - Camrose - Drumheller		360.4%	-295.0%	70.2%	-423.7%	44.3%	365.1%	-61.1%	-106.5%	180.6%	-19.6%	88.1%	232.7%	-95.5%	-468.7%	338.7%	157.6%	30.7%	97.8%	178.8%
4830 - Calgary		288.5%	432.4%	140.8%	73.7%	199.7%	89.2%	75.5%	415.4%	373.1%	148.7%	436.5%	124.0%	310.1%	-2918.9%	81.9%	39.8%	161.7%	117.5%	336.9%
4840 - Banff - Jasper - RkyMtnH		128.0%	823.9%	529.3%	-515.7%	-46.7%	253.7%	164.2%	306.3%	213.6%	-36.8%	116.6%	353.2%	-339.3%	-726.7%	-46.7%	-223.9%	254.2%	376.2%	123.7%
4850 - Red Deer		412.7%	-26.3%	566.5%	649.6%	-45.6%	36.7%	78.1%	272.6%	184.9%	227.8%	519.9%	-135.2%	493.9%	-706.5%	43.3%	189.9%	228.8%	88.9%	298.1%
4860 - Edmonton		167.1%	183.5%	202.1%	-15.7%	157.7%	-309.6%	154.8%	210.0%	-36.5%	203.7%	91.4%	21.1%	134.7%	-2536.2%	295.0%	89.0%	276.6%	-61.7%	135.7%
4870 - Athabasca - GrdPr - PcRvr		146.9%	703.0%	397.5%	-12.6%	105.9%	391.3%	243.0%	430.9%	136.9%	-101.0%	-69.0%	-12.1%	126.3%	-1282.5%	96.2%	121.5%	68.3%	324.9%	117.0%
4880 - Wood Buffalo - Cold Lake		425.1%	544.0%	411.7%	-53.6%	142.4%	392.2%	-500.2%	150.6%	556.7%	197.1%	-349.2%	407.6%	513.0%	-3447.1%	464.8%	230.2%	-78.9%	57.3%	167.3%
Manitoba		-12.2%	149.8%	-62.8%	330.3%	134.3%	87.7%	71.3%	182.9%	-7.4%	92.4%	160.9%	58.6%	145.6%	15.0%	83.2%	37.5%	129.2%	6.3%	33.6%
Saskatchewan		-32.0%	-148.0%	-89.2%	109.5%	131.1%	7.8%	121.8%	36.3%	52.4%	90.8%	113.7%	-8.4%	71.8%	1695.0%	36.1%	75.6%	125.9%	30.2%	88.9%
Alberta		256.3%	304.0%	179.1%	-14.6%	133.6%	-31.8%	106.8%	253.8%	180.0%	120.4%	219.9%	108.7%	175.4%	-2382.3%	155.8%	101.9%	187.8%	84.2%	208.6%
Prairie Average		133.9%	176.8%	70.6%	87.0%	133.3%	2.0%	101.8%	195.9%	114.6%	108.8%	187.4%	76.4%	150.2%	-1144.1%	120.1%	84.1%	165.4%	59.3%	153.6%
Regional Averages (=100%)		1.21%	0.78%	1.35%	-1.03%	-1.35%	1.12%	2.61%	1.24%	1.98%	2.94%	1.64%	1.90%	2.00%	-0.15%	1.72%	2.41%	1.23%	3.08%	3.00%

ER FTE Growth as Percentage of Regional Averages																				
2 Year Rolling Average																				
Indicator/Geography	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
4610 - Southeast			264.6%	292.4%	-611.0%	238.3%	-859.2%	179.2%	8.6%	-90.0%	161.2%	204.2%	191.8%	246.2%	-62.0%	54.5%	329.3%	255.1%	107.2%	100.8%
4620 - South Central			-28.9%	-55.6%	-1910.3%	284.0%	442.5%	281.2%	274.3%	198.0%	125.2%	167.3%	150.3%	132.2%	-189.6%	-126.0%	37.6%	138.0%	250.8%	7.8%
4630 - Southwest			-191.3%	-418.2%	-2613.3%	0.0%	-617.9%	23.0%	51.0%	274.9%	117.2%	-128.2%	-44.4%	183.7%	413.6%	66.1%	41.4%	147.5%	-202.4%	-39.6%
4640 - North Central			66.3%	29.4%	-716.4%	321.6%	-1924.3%	368.3%	148.0%	-73.3%	-36.4%	53.1%	225.3%	46.4%	-91.4%	456.3%	207.7%	-152.5%	-135.6%	143.6%
4650 - Winnipeg			110.4%	-7.4%	-2077.7%	270.8%	645.4%	41.6%	127.7%	95.3%	13.9%	137.7%	152.8%	107.8%	227.9%	154.6%	21.1%	58.9%	38.0%	-5.8%
4660 - Interlake			-71.1%	236.5%	263.0%	-59.0%	-257.8%	101.6%	119.9%	-100.7%	151.3%	228.4%	89.7%	135.0%	-49.5%	-132.3%	156.3%	74.6%	121.6%	91.0%
4670 & 4680 - Parklands & North			-146.7%	294.4%	1213.5%	205.7%	1054.1%	40.4%	0.0%	-90.0%	85.5%	91.8%	-197.1%	-150.0%	50.3%	-219.5%	-103.8%	-62.1%	194.9%	80.8%
4710 - Regina - Moose Mountain			-18.1%	-75.3%	-265.7%	105.5%	825.8%	111.9%	29.2%	0.0%	84.6%	128.9%	48.0%	-35.2%	103.8%	33.5%	31.0%	143.1%	33.6%	5.4%
4720 - Swift Current - Moose Jaw			-256.3%	-53.5%	0.0%	467.1%	2123.9%	99.3%	210.0%	123.8%	4.9%	47.3%	-6.8%	43.0%	0.0%	-317.5%	17.4%	-13.7%	78.2%	134.4%
4730 - Saskatoon - Biggar			101.2%	-71.7%	-2378.4%	125.3%	-255.0%	79.2%	169.3%	186.2%	110.7%	98.1%	40.6%	95.9%	14.2%	-44.1%	120.5%	33.4%	91.5%	131.3%
4740 - Yorkton - Melville			0.0%	-266.6%	-966.5%	0.0%	871.5%	33.0%	-80.4%	-221.2%	64.8%	161.7%	-35.2%	-62.4%	-372.1%	-340.3%	8.1%	99.9%	195.7%	20.8%
4750 & 4760 - PA & Northern			-338.4%	-176.2%	106.0%	-18.7%	469.5%	82.7%	110.4%	-4.3%	51.3%	55.1%	128.6%	81.8%	-318.3%	-285.0%	53.8%	170.8%	-31.8%	10.8%
4810 - Lethbridge - Medicine Hat			405.1%	-76.1%	-492.9%	-131.1%	1256.0%	117.8%	174.1%	65.6%	34.3%	53.0%	344.2%	99.9%	28.6%	92.1%	185.3%	384.0%	262.0%	120.3%
4820 - Camrose - Drumheller			96.1%	-64.1%	1949.5%	-159.0%	-1235.9%	64.9%	-74.8%	67.2%	60.2%	18.6%	167.9%	62.3%	-66.0%	421.2%	235.6%	115.6%	78.9%	139.9%
4830 - Calgary			347.8%	247.1%	407.5%	145.9%	622.3%	80.2%	187.0%	394.0%	243.9%	255.4%	274.3%	223.8%	580.6%	373.4%	57.0%	82.0%	131.9%	230.9%
4840 - Banff - Jasper - RkyMtnH			403.3%	648.9%	4666.6%	-254.0%	-1247.6%	194.5%	213.2%	249.7%	62.6%	17.5%	247.7%	-13.8%	-310.6%	17.4%	-147.3%	-67.0%	349.8%	257.8%
4850 - Red Deer			236.9%	342.4%	150.0%	260.1%	-368.7%	66.0%	142.0%	218.6%	214.0%	340.5%	162.7%	181.5%	592.8%	115.8%	128.2%	207.6%	130.7%	195.4%
4860 - Edmonton			173.3%	194.0%	1050.3%	83.7%	1977.1%	11.9%	174.4%	56.9%	105.4%	163.2%	54.0%	79.8%	352.6%	580.4%	175.4%	155.3%	33.4%	34.3%
4870 - Athabasca - GrdPr - PcRvr			367.4%	515.5%	1997.0%	55.3%	-1028.0%	295.2%	310.8%	250.1%	-6.8%	-87.7%	-38.5%	58.9%	240.6%	230.8%	110.8%	104.7%	253.6%	227.3%
4880 - Wood Buffalo - Cold Lake			478.3%	464.1%	2228.7%	58.6%	-493.7%	-271.9%	-294.6%	399.2%	352.3%	-5.9%	44.3%	483.2%	854.6%	868.8%	334.7%	124.7%	18.0%	112.6%
Manitoba			51.1%	14.7%	-1536.8%	219.0%	307.9%	76.8%	107.9%	64.7%	51.8%	117.0%	107.1%	104.3%	155.2%	90.4%	56.2%	69.3%	41.5%	19.7%
Saskatchewan			-76.7%	-108.4%	-842.9%	122.3%	605.7%	87.8%	94.0%	45.5%	75.3%	98.8%	48.2%	32.8%	-60.0%	-123.2%	58.8%	93.9%	57.9%	59.4%
Alberta			276.1%	224.2%	933.4%	70.3%	773.6%	65.0%	155.7%	208.1%	145.9%	156.8%	162.7%	145.1%	385.3%	405.8%	124.4%	133.2%	115.2%	147.7%
Prairie Average			69.0%	44.0%	-326.6%	76.4%	-8.1%	71.4%	62.9%	69.1%	64.5%	66.3%	41.1%	77.2%	91.3%	132.6%	48.5%	56.3%	42.4%	75.5%
Regional Averages (=100%)			2.01%	2.17%	0.28%	-2.36%	-0.28%	3.72%	3.87%	3.29%	4.96%	4.65%	3.54%	3.90%	1.86%	1.56%	4.17%	3.62%	4.32%	6.11%

ER FTE Growth as Percentage of Regional Averages																				
3 Year Rolling Average																				
Indicator/Geography	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
4610 - Southeast				206.2%	251.9%	378.4%	76.1%	178.6%	104.6%	-22.7%	104.8%	114.8%	262.9%	166.4%	154.7%	87.3%	243.7%	259.7%	207.2%	87.3%
4620 - South Central				-135.2%	-215.4%	986.0%	186.8%	187.8%	311.9%	212.6%	179.0%	143.9%	152.1%	152.9%	-40.7%	27.7%	-120.8%	184.1%	110.9%	119.1%
4630 - Southwest				-290.7%	-880.2%	599.5%	-65.5%	74.9%	56.6%	153.7%	126.0%	8.3%	-39.4%	32.9%	304.2%	124.2%	145.7%	41.1%	-64.0%	-26.4%
4640 - North Central				155.0%	-455.6%	369.7%	48.5%	495.9%	272.4%	54.2%	-28.8%	0.0%	131.4%	66.1%	110.9%	78.0%	277.1%	-21.4%	-32.7%	-14.5%
4650 - Winnipeg				9.4%	-366.3%	761.7%	434.5%	-45.5%	114.5%	66.7%	77.5%	80.3%	109.2%	162.4%	131.8%	163.0%	41.1%	70.0%	13.4%	34.1%
4660 - Interlake				72.7%	163.8%	-509.1%	186.8%	375.2%	13.7%	72.9%	68.5%	153.4%	171.9%	142.6%	-8.1%	67.6%	21.7%	114.9%	124.4%	71.3%
4670 & 4680 - Parklands & North				94.3%	298.9%	-113.9%	437.7%	-25.6%	-17.9%	-10.3%	28.3%	54.5%	-37.1%	-114.9%	-146.1%	-77.3%	-99.5%	-108.8%	114.2%	44.0%
4710 - Regina - Moose Mountain				-34.5%	-137.9%	308.5%	169.6%	64.1%	28.2%	65.8%	23.1%	132.7%	48.3%	54.7%	-20.3%	50.8%	47.1%	94.3%	42.2%	55.6%
4720 - Swift Current - Moose Jaw				-6.8%	-539.4%	601.3%	809.2%	-128.8%	173.1%	125.0%	81.0%	21.8%	11.2%	52.2%	-37.7%	-53.3%	-58.0%	-44.9%	91.5%	65.5%
4730 - Saskatoon - Biggar				-50.7%	-399.3%	613.8%	173.7%	128.1%	145.5%	144.1%	158.8%	96.4%	77.8%	83.9%	21.1%	68.1%	50.7%	63.7%	100.9%	86.8%
4740 - Yorkton - Melville				-103.2%	-439.3%	332.5%	117.5%	13.2%	-91.5%	-79.5%	-43.4%	86.7%	54.7%	0.0%	-271.7%	-112.6%	-192.0%	125.5%	82.7%	105.6%
4750 & 4760 - PA & Northern				-217.5%	-252.9%	27.3%	22.5%	107.6%	69.9%	62.7%	47.5%	29.7%	119.0%	47.1%	-29.2%	-170.3%	-49.7%	109.0%	16.6%	57.8%
4810 - Lethbridge - Medicine Hat				100.9%	124.8%	127.2%	39.5%	190.4%	59.7%	178.7%	5.7%	91.0%	155.3%	150.3%	213.9%	-55.6%	298.9%	203.9%	340.9%	144.3%
4820 - Camrose - Drumheller				84.3%	262.2%	-443.9%	-611.4%	78.2%	21.0%	9.9%	25.8%	67.1%	81.1%	70.3%	82.6%	124.0%	261.3%	189.7%	108.4%	121.7%
4830 - Calgary				262.3%	407.1%	151.0%	190.4%	8.7%	165.2%	258.1%	285.0%	301.8%	220.7%	297.0%	353.5%	340.3%	168.2%	81.8%	99.2%	222.6%
4840 - Banff - Jasper - RkyMtnH				460.2%	1801.8%	-1271.2%	-689.4%	343.9%	225.1%	218.4%	112.1%	76.2%	115.4%	24.6%	14.1%	-179.9%	-126.6%	-59.4%	131.6%	263.3%
4850 - Red Deer				371.3%	18.4%	-96.8%	441.1%	134.2%	117.9%	159.3%	228.8%	300.7%	195.4%	291.6%	215.6%	326.4%	159.1%	154.0%	154.9%	205.1%
4860 - Edmonton				183.3%	391.2%	-65.2%	410.8%	-74.0%	61.0%	101.7%	127.0%	102.0%	122.0%	83.8%	184.1%	328.9%	280.2%	203.1%	53.5%	75.7%
4870 - Athabasca - GrdPr - PcRvr				382.2%	1012.2%	-373.6%	-230.0%	408.0%	336.6%	256.5%	79.7%	-22.0%	-65.3%	20.4%	111.7%	170.7%	163.2%	101.9%	210.0%	201.7%
4880 - Wood Buffalo - Cold Lake				456.6%	954.1%	-383.4%	-148.5%	-514.9%	-167.6%	-27.7%	313.5%	160.8%	113.4%	215.8%	655.6%	692.0%	488.4%	238.0%	94.2%	79.3%
Manitoba				5.0%	-278.0%	559.8%	325.2%	42.8%	103.4%	68.5%	78.1%	79.1%	100.6%	122.5%	106.3%	119.9%	57.2%	73.6%	40.1%	38.3%
Saskatchewan				-79.3%	-309.1%	380.0%	214.8%	62.3%	74.2%	80.3%	67.0%	85.1%	67.3%	57.0%	-33.6%	-13.9%	-3.2%	74.8%	64.6%	71.1%
Alberta				235.5%	448.7%	-67.0%	154.0%	24.6%	112.4%	166.9%	169.2%	166.6%	144.6%	170.3%	247.2%	276.1%	219.9%	141.2%	111.7%	156.9%
Prairie Average				116.5%	128.1%	165.0%	204.3%	35.9%	103.0%	128.4%	129.3%	131.9%	120.6%	138.9%	165.3%	190.2%	145.5%	115.7%	88.9%	118.2%
Regional Averages (=100%)				3.44%	1.12%	-1.07%	-1.31%	2.30%	5.03%	5.88%	6.26%	6.68%	6.58%	5.57%	3.80%	3.64%	4.06%	5.40%	6.76%	7.36%

ER FTE Growth as Percentage of Regional Averages																				
4 Year Rolling Average																				
Indicator/Geography	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
4610 - Southeast					148.5%	-156.5%	2622.6%	53.6%	76.8%	49.6%	93.8%	77.9%	176.5%	228.8%	101.9%	186.2%	199.8%	193.9%	221.5%	161.2%
4620 - South Central					-243.5%	3481.2%	-25053.2%	246.6%	259.7%	249.6%	196.3%	184.4%	136.6%	152.5%	29.3%	54.7%	-32.5%	56.1%	146.4%	55.5%
4630 - Southwest					-451.1%	4030.6%	-21809.9%	69.1%	104.8%	141.1%	88.7%	31.7%	47.8%	8.9%	110.4%	146.2%	153.9%	122.5%	-83.4%	28.3%
4640 - North Central					-27.9%	3114.5%	12811.3%	409.6%	320.0%	155.0%	42.9%	0.0%	69.4%	49.4%	112.5%	159.8%	109.6%	22.6%	26.9%	27.9%
4650 - Winnipeg					-152.1%	2909.9%	-28906.1%	-400.2%	85.7%	66.9%	63.6%	121.3%	70.6%	124.4%	181.3%	118.7%	83.1%	87.5%	29.5%	17.9%
4660 - Interlake					-29.9%	-2930.9%	5644.4%	422.8%	151.3%	4.9%	140.2%	86.7%	125.7%	188.0%	40.8%	54.8%	89.0%	11.2%	141.1%	84.9%
4670 & 4680 - Parklands & North					12.4%	-540.5%	1183.8%	-277.4%	-82.5%	-21.2%	47.6%	14.7%	-34.9%	-20.9%	-112.0%	-160.3%	-55.3%	-106.6%	43.3%	26.0%
4710 - Regina - Moose Mountain					-45.8%	1815.2%	-11758.7%	126.9%	-33.6%	58.9%	60.3%	74.7%	68.7%	52.0%	67.3%	-15.2%	52.4%	109.3%	32.2%	55.9%
4720 - Swift Current - Moose Jaw					-215.8%	5363.1%	-23079.3%	-626.7%	48.5%	112.0%	94.2%	79.3%	0.0%	44.8%	-4.4%	-59.2%	11.7%	-103.2%	48.1%	77.5%
4730 - Saskatoon - Biggar					-194.8%	1985.2%	-22931.3%	-8.0%	205.2%	130.8%	139.2%	136.6%	80.7%	96.8%	31.3%	53.5%	85.4%	9.8%	107.0%	94.2%
4740 - Yorkton - Melville					-111.5%	2569.5%	-19588.4%	99.3%	-153.4%	-86.8%	0.0%	-3.8%	22.2%	56.1%	-148.5%	-134.4%	-106.5%	-35.6%	102.7%	49.8%
4750 & 4760 - PA & Northern					-273.5%	1509.0%	-3979.9%	285.5%	81.6%	41.4%	77.8%	30.1%	83.1%	66.7%	-30.4%	-24.5%	-61.5%	28.2%	9.8%	69.6%
4810 - Lethbridge - Medicine Hat					279.6%	-620.5%	-18751.9%	615.9%	84.2%	93.8%	96.0%	58.3%	162.3%	73.8%	234.5%	95.2%	133.5%	296.4%	232.1%	225.0%
4820 - Camrose - Drumheller					310.3%	-1029.0%	35070.1%	506.4%	12.6%	66.1%	0.0%	38.5%	104.8%	37.9%	85.1%	161.7%	136.4%	210.1%	158.2%	132.2%
4830 - Calgary					343.1%	-767.3%	-2466.4%	-45.7%	150.9%	231.0%	226.8%	328.6%	264.7%	247.4%	396.0%	266.0%	216.4%	170.7%	95.6%	176.6%
4840 - Banff - Jasper - RkyMtnH					921.8%	-9296.1%	65374.2%	1105.6%	337.3%	226.9%	130.4%	113.3%	139.8%	3.1%	45.2%	-4.8%	-186.3%	-41.2%	93.5%	130.7%
4850 - Red Deer					217.6%	-366.6%	5632.7%	-310.5%	184.7%	138.9%	187.3%	301.0%	195.6%	274.8%	320.1%	159.2%	273.2%	180.3%	131.6%	205.6%
4860 - Edmonton					271.3%	-953.5%	-10836.5%	-124.9%	24.3%	32.8%	138.4%	119.7%	83.3%	125.1%	157.9%	219.7%	231.1%	289.1%	103.3%	79.1%
4870 - Athabasca - GrdPr - PcRvr					556.8%	-4322.6%	33214.2%	770.9%	427.8%	284.4%	130.8%	47.5%	-19.5%	-21.4%	56.2%	105.6%	149.8%	143.4%	187.4%	183.8%
4880 - Wood Buffalo - Cold Lake					684.6%	-3794.7%	29608.3%	-918.8%	-285.9%	23.8%	45.7%	159.7%	222.5%	211.7%	325.6%	617.2%	516.6%	365.5%	173.1%	118.2%
Manitoba					-136.2%	2165.5%	-19694.6%	-199.4%	92.1%	71.4%	76.9%	95.7%	74.4%	111.3%	124.7%	97.8%	85.3%	75.3%	48.7%	37.8%
Saskatchewan					-160.4%	2298.8%	-15473.9%	22.9%	53.0%	68.1%	84.3%	76.7%	63.4%	67.8%	10.4%	-11.8%	21.0%	27.0%	58.4%	72.2%
Alberta					346.2%	-1366.0%	1393.1%	58.0%	104.9%	133.3%	153.8%	182.3%	154.5%	152.8%	245.0%	218.0%	205.0%	218.2%	121.5%	144.2%
Prairie Average					128.6%	177.3%	-6774.8%	-6.7%	92.1%	107.1%	123.3%	142.8%	119.6%	127.9%	175.4%	150.0%	146.2%	153.7%	95.5%	110.1%
Regional Averages (=100%)					2.39%	-0.22%	0.03%	1.24%	3.57%	7.07%	8.92%	8.02%	8.69%	8.74%	5.45%	5.65%	6.22%	5.25%	8.58%	9.90%

ER FTE Growth as Percentage of Regional Averages																				
5 Year Rolling Average																				
Indicator/Geography	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
4610 - Southeast						103.5%	591.6%	91.4%	-26.8%	18.4%	135.3%	74.4%	137.1%	164.3%	185.8%	139.2%	244.8%	170.8%	178.1%	178.5%
4620 - South Central						-1074.7%	-404.8%	-45.3%	320.6%	198.8%	226.1%	197.1%	170.3%	139.3%	71.3%	87.2%	0.0%	81.4%	64.2%	88.8%
4630 - Southwest						-972.9%	-928.6%	-217.1%	115.2%	195.4%	87.3%	23.6%	61.7%	70.8%	57.4%	39.4%	161.7%	135.7%	-39.8%	-2.1%
4640 - North Central						-259.4%	0.0%	357.1%	204.8%	156.1%	115.1%	53.2%	59.8%	16.5%	79.2%	150.9%	158.8%	-38.2%	56.3%	63.7%
4650 - Winnipeg						-592.9%	-652.3%	-260.2%	-40.7%	36.7%	64.1%	98.1%	104.6%	89.4%	136.9%	159.4%	71.1%	110.0%	39.6%	29.0%
4660 - Interlake						382.2%	287.2%	365.2%	84.6%	90.1%	81.5%	142.4%	75.6%	146.4%	119.8%	78.1%	74.2%	70.2%	73.5%	102.7%
4670 & 4680 - Parklands & North						-172.2%	34.0%	106.1%	-231.1%	-63.2%	32.7%	33.7%	-52.9%	-22.1%	-17.8%	-131.1%	-115.6%	-67.1%	48.0%	-10.5%
4710 - Regina - Moose Mountain						-354.8%	-426.9%	28.4%	-44.8%	26.4%	56.1%	93.6%	31.6%	67.3%	60.4%	48.9%	6.2%	95.8%	40.3%	46.1%
4720 - Swift Current - Moose Jaw						-1093.7%	-1299.4%	-114.9%	-132.9%	17.7%	88.7%	90.1%	48.0%	28.8%	8.6%	-29.8%	-8.6%	-32.6%	11.2%	47.3%
4730 - Saskatoon - Biggar						-452.5%	-424.1%	-147.3%	167.5%	165.5%	130.6%	124.5%	114.6%	95.1%	62.9%	54.0%	70.3%	49.9%	72.4%	99.5%
4740 - Yorkton - Melville						-345.4%	-809.3%	-91.8%	-186.1%	-125.1%	-15.2%	23.1%	-39.1%	29.4%	-41.9%	-72.4%	-120.1%	-8.5%	0.0%	69.0%
4750 & 4760 - PA & Northern						-688.3%	-459.4%	107.5%	160.6%	41.7%	60.8%	58.8%	76.1%	47.8%	16.6%	-26.4%	13.3%	-5.3%	-40.0%	55.9%
4810 - Lethbridge - Medicine Hat						649.5%	-241.6%	114.9%	250.5%	118.7%	47.0%	122.7%	125.0%	93.2%	125.9%	135.5%	197.6%	155.9%	295.1%	162.6%
4820 - Camrose - Drumheller						658.0%	726.0%	281.7%	196.2%	72.4%	40.3%	13.4%	76.0%	64.0%	47.0%	146.6%	159.1%	119.4%	170.9%	166.7%
4830 - Calgary						512.4%	306.7%	51.3%	185.1%	235.9%	211.7%	267.6%	291.3%	279.6%	313.8%	318.4%	193.4%	211.2%	153.5%	162.3%
4840 - Banff - Jasper - RkyMtnH						2216.3%	2725.7%	844.6%	728.0%	300.1%	146.1%	127.6%	163.0%	41.3%	15.8%	22.5%	-67.6%	-118.4%	109.3%	102.0%
4850 - Red Deer						568.6%	138.6%	136.2%	-23.3%	187.8%	169.8%	247.4%	208.0%	260.8%	295.3%	250.4%	167.5%	272.6%	148.3%	180.1%
4860 - Edmonton						409.0%	-154.9%	44.2%	41.6%	2.4%	83.6%	130.1%	99.7%	92.5%	176.4%	192.9%	177.7%	245.4%	154.4%	112.8%
4870 - Athabasca - GrdPr - PcRvr						1135.3%	1625.7%	597.3%	623.0%	329.0%	163.4%	96.4%	35.5%	7.2%	0.0%	65.2%	108.6%	137.5%	217.7%	170.9%
4880 - Wood Buffalo - Cold Lake						1372.1%	1366.0%	-249.4%	-392.1%	-4.9%	75.0%	-17.6%	214.0%	288.4%	286.7%	371.1%	507.7%	414.3%	246.8%	174.8%
Manitoba						-487.5%	-441.5%	-127.6%	-9.9%	56.1%	78.1%	89.8%	88.2%	87.3%	113.1%	113.7%	77.6%	93.8%	49.4%	44.3%
Saskatchewan						-538.7%	-570.0%	-35.8%	29.8%	52.8%	75.2%	88.4%	59.4%	64.2%	38.0%	16.3%	13.7%	38.6%	28.1%	66.3%
Alberta						613.5%	308.2%	122.2%	157.7%	133.2%	131.5%	165.3%	168.8%	158.9%	202.6%	224.0%	180.7%	206.3%	170.6%	147.0%
Prairie Average						117.7%	-42.2%	33.7%	95.2%	100.8%	108.9%	133.7%	129.8%	125.1%	152.5%	161.6%	127.9%	152.0%	119.4%	111.8%
Regional Averages (=100%)						1.03%	0.89%	2.58%	2.47%	5.59%	10.12%	10.78%	10.07%	10.95%	8.58%	7.32%	8.35%	7.45%	8.41%	11.80%

ER FTE Growth as Percentage of Regional Averages																				
6 Year Rolling Average																				
Indicator/Geography	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
4610 - Southeast							276.8%	203.5%	26.2%	-51.3%	127.5%	111.3%	122.4%	132.5%	128.8%	199.4%	200.1%	216.7%	166.0%	145.0%
4620 - South Central							-320.4%	52.2%	91.0%	216.1%	186.7%	223.6%	184.9%	166.9%	72.8%	105.4%	31.8%	86.2%	80.8%	29.4%
4630 - Southwest							-423.9%	-239.6%	-96.8%	220.8%	113.7%	28.5%	48.4%	79.7%	112.1%	17.2%	78.3%	146.8%	0.0%	33.0%
4640 - North Central							214.3%	165.7%	238.9%	56.1%	109.3%	114.3%	94.2%	14.6%	38.8%	111.3%	153.0%	31.5%	5.4%	86.1%
4650 - Winnipeg							-246.5%	-147.4%	-73.7%	-43.7%	43.8%	95.4%	88.6%	115.6%	97.9%	128.4%	108.3%	93.9%	64.9%	36.1%
4660 - Interlake							0.0%	307.0%	159.8%	38.6%	154.8%	91.8%	125.1%	101.4%	91.0%	133.2%	88.7%	61.4%	104.3%	52.8%
4670 & 4680 - Parklands & North							-121.9%	79.0%	7.9%	-139.2%	13.7%	22.6%	-23.6%	-38.1%	-19.5%	-49.2%	-101.5%	-116.1%	44.1%	-8.0%
4710 - Regina - Moose Mountain							-154.9%	-2.6%	-49.8%	34.7%	34.3%	86.9%	55.8%	36.6%	73.8%	48.2%	50.0%	44.8%	44.8%	52.0%
4720 - Swift Current - Moose Jaw							-494.7%	-254.8%	44.8%	-88.4%	23.0%	85.9%	63.3%	65.6%	0.0%	-11.6%	4.8%	-40.0%	38.9%	20.1%
4730 - Saskatoon - Biggar							-182.4%	-47.7%	7.4%	133.2%	153.7%	118.7%	109.2%	121.7%	67.1%	73.2%	68.0%	44.6%	89.2%	73.4%
4740 - Yorkton - Melville							-231.0%	-133.6%	-207.2%	-135.9%	-28.3%	7.7%	-9.7%	-22.0%	-47.3%	-6.2%	-77.7%	-44.5%	11.9%	-5.3%
4750 & 4760 - PA & Northern							-356.1%	-12.3%	83.3%	74.9%	64.3%	46.4%	91.9%	45.8%	7.8%	10.8%	5.5%	49.3%	-48.4%	18.4%
4810 - Lethbridge - Medicine Hat							134.9%	168.7%	41.6%	220.0%	55.3%	77.3%	169.6%	70.5%	135.2%	75.7%	214.5%	209.4%	193.5%	205.7%
4820 - Camrose - Drumheller							510.2%	138.2%	151.6%	190.6%	40.1%	46.6%	46.3%	45.1%	71.4%	95.7%	148.9%	143.3%	114.6%	175.4%
4830 - Calgary							289.9%	137.6%	170.2%	272.8%	210.9%	251.5%	248.3%	301.2%	333.9%	272.2%	244.2%	192.8%	187.6%	208.1%
4840 - Banff - Jasper - RkyMtnH							1205.7%	857.0%	685.6%	509.4%	180.4%	141.7%	166.7%	68.5%	52.0%	5.1%	-38.3%	-28.1%	16.6%	113.3%
4850 - Red Deer							286.2%	95.3%	182.2%	68.0%	208.3%	227.0%	182.4%	265.3%	275.2%	249.1%	236.7%	179.7%	222.2%	192.7%
4860 - Edmonton							27.8%	75.0%	98.2%	6.6%	71.4%	84.2%	112.8%	104.8%	131.4%	198.8%	165.2%	195.9%	150.9%	150.4%
4870 - Athabasca - GrdPr - PcRvr							759.7%	629.1%	560.2%	410.5%	172.9%	127.0%	78.9%	49.9%	25.0%	15.7%	78.1%	104.3%	200.5%	192.1%
4880 - Wood Buffalo - Cold Lake							824.2%	-70.5%	-121.4%	6.1%	64.1%	11.7%	44.4%	274.4%	352.7%	327.5%	341.2%	428.2%	312.3%	229.4%
Manitoba							-187.5%	-62.3%	-28.2%	-8.6%	69.1%	89.8%	84.9%	97.2%	87.7%	106.9%	92.8%	85.4%	67.7%	44.5%
Saskatchewan							-250.5%	-59.9%	-12.3%	39.5%	66.3%	80.3%	72.8%	60.5%	39.8%	37.0%	30.3%	28.3%	36.1%	43.6%
Alberta							272.2%	162.2%	166.3%	168.5%	130.9%	145.2%	157.7%	170.1%	198.4%	194.6%	192.0%	185.4%	172.9%	183.9%
Prairie Average							56.6%	65.6%	86.4%	103.7%	104.9%	120.5%	125.2%	132.8%	143.9%	146.1%	140.5%	135.1%	125.7%	129.3%
Regional Averages (=100%)							2.18%	3.46%	3.86%	4.52%	8.60%	11.98%	12.84%	12.41%	10.87%	10.54%	10.03%	9.57%	10.62%	11.69%

Relative Annual Regional Unemployemt Rate [((LF-Emp)/LF)]/Annual Avg. UE Rate																				
Indicator/Geography	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
4610 - Southeast	70.6%	88.8%	83.3%	91.3%	95.1%	104.1%	104.2%	94.8%	108.9%	99.0%	97.9%	97.5%	96.5%	94.0%	96.1%	98.7%	86.4%	103.0%	113.6%	104.7%
4620 - South Central	64.1%	79.6%	88.2%	71.4%	70.1%	67.7%	49.7%	49.0%	62.0%	53.2%	57.7%	51.6%	49.8%	71.4%	91.6%	67.3%	74.5%	66.5%	65.1%	67.0%
4630 - Southwest	78.7%	86.9%	88.3%	89.8%	92.3%	68.6%	69.4%	80.1%	79.1%	85.2%	91.5%	84.5%	78.4%	78.8%	75.2%	79.7%	77.2%	94.1%	118.9%	108.8%
4640 - North Central	96.3%	84.1%	90.5%	86.4%	79.9%	81.6%	71.0%	65.0%	75.4%	74.2%	86.6%	76.1%	85.8%	76.2%	66.5%	65.3%	74.8%	105.6%	100.4%	89.2%
4650 - Winnipeg	104.3%	113.4%	114.2%	123.7%	136.1%	139.2%	139.9%	155.0%	119.6%	134.9%	134.4%	107.4%	105.4%	113.1%	111.7%	106.2%	106.6%	119.5%	117.3%	126.1%
4660 - Interlake	67.4%	96.4%	98.7%	96.6%	104.4%	80.5%	92.3%	93.5%	116.8%	114.7%	114.4%	118.7%	95.3%	89.4%	113.2%	103.7%	99.5%	98.3%	115.8%	73.9%
4670 & 4680 - Parklands & North	103.7%	114.5%	125.9%	119.4%	103.7%	106.2%	100.3%	110.1%	93.5%	99.5%	107.4%	110.9%	136.5%	125.6%	115.3%	125.8%	127.2%	143.9%	94.0%	121.8%
4710 - Regina - Moose Mountain	82.1%	88.8%	98.5%	94.1%	80.7%	90.0%	97.7%	88.3%	96.8%	91.3%	99.2%	94.5%	99.2%	100.2%	106.3%	102.5%	106.9%	100.2%	105.1%	114.9%
4720 - Swift Current - Moose Jaw	67.9%	67.4%	77.8%	73.4%	83.2%	87.3%	100.3%	81.2%	73.1%	86.1%	75.3%	71.7%	84.5%	72.1%	85.7%	86.2%	101.2%	108.1%	111.5%	120.3%
4730 - Saskatoon - Biggar	106.6%	112.1%	117.4%	126.5%	127.8%	117.6%	112.2%	115.2%	105.5%	116.2%	114.1%	113.7%	104.8%	105.8%	122.3%	111.9%	111.4%	122.4%	115.0%	113.3%
4740 - Yorkton - Melville	71.3%	79.6%	74.4%	87.2%	72.7%	55.5%	74.1%	69.8%	90.7%	77.6%	102.8%	85.8%	96.5%	110.5%	124.3%	105.4%	101.5%	97.1%	117.5%	106.2%
4750 & 4760 - Prince Albert & Northern	118.9%	130.3%	132.4%	131.0%	117.7%	123.2%	120.3%	120.5%	120.5%	143.5%	136.0%	140.6%	143.8%	143.2%	156.7%	143.2%	129.1%	129.7%	157.7%	157.7%
4810 - Lethbridge - Medicine Hat	106.5%	97.8%	82.5%	97.3%	86.5%	93.8%	100.6%	109.4%	99.3%	100.0%	119.2%	86.2%	82.0%	101.5%	86.6%	101.4%	87.2%	81.4%	92.0%	80.1%
4820 - Camrose - Drumheller	87.7%	70.8%	69.5%	70.6%	76.6%	64.2%	65.4%	73.9%	82.3%	66.3%	73.2%	98.9%	92.4%	85.6%	72.3%	75.3%	79.4%	75.5%	74.1%	74.3%
4830 - Calgary	112.9%	104.2%	98.0%	102.7%	115.5%	124.9%	127.4%	133.7%	120.5%	108.4%	107.5%	93.5%	99.6%	95.8%	95.7%	110.6%	106.7%	105.1%	92.5%	85.2%
4840 - Banff - Jasper - Rocky Mountain House	122.9%	105.9%	108.3%	106.1%	83.1%	93.7%	99.2%	74.9%	65.2%	73.2%	86.4%	107.7%	75.6%	97.2%	74.7%	105.4%	101.1%	68.1%	65.8%	67.5%
4850 - Red Deer	119.1%	102.1%	105.9%	94.5%	121.6%	132.8%	104.1%	113.9%	127.0%	116.6%	85.3%	84.7%	114.1%	112.5%	103.1%	105.4%	110.5%	93.5%	77.7%	101.5%
4860 - Edmonton	138.4%	120.7%	116.7%	115.0%	126.3%	136.1%	138.8%	153.9%	131.8%	131.0%	123.1%	112.1%	104.9%	115.4%	105.2%	103.5%	99.6%	100.9%	105.7%	101.6%
4870 - Athabasca - Grande Prairie - Peace River	124.2%	119.3%	103.4%	98.0%	99.8%	103.6%	93.5%	71.4%	86.2%	90.8%	77.5%	107.0%	127.3%	117.6%	102.7%	111.1%	114.8%	104.6%	72.8%	89.0%
4880 - Wood Buffalo - Cold Lake	156.3%	137.1%	126.0%	125.2%	126.9%	129.1%	139.4%	146.3%	145.8%	138.1%	110.5%	156.9%	127.6%	94.3%	94.7%	91.4%	104.4%	82.5%	87.6%	117.0%
Regional Average	7.83%	7.33%	6.94%	6.55%	7.26%	7.84%	7.94%	6.86%	6.69%	6.21%	5.48%	5.47%	5.60%	4.77%	4.78%	5.07%	5.01%	4.71%	4.25%	3.79%

Relative Population Density																					
Geography	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
4610 - Southeast	38.67%	39.09%	39.47%	39.34%	38.93%	39.81%	39.71%	39.74%	39.87%	39.87%	39.78%	39.52%	38.83%	38.59%	38.37%	37.80%	37.66%	37.77%	38.00%	37.87%	37.53%
4620 - South Central	57.55%	57.27%	56.85%	55.63%	54.26%	54.53%	53.96%	53.61%	53.41%	53.42%	53.14%	52.36%	51.34%	50.65%	50.22%	49.21%	48.67%	48.52%	48.48%	48.17%	47.61%
4630 - Southwest	45.19%	44.83%	44.15%	43.09%	41.54%	41.45%	40.74%	40.59%	40.35%	39.88%	39.36%	38.56%	37.61%	36.97%	36.27%	34.83%	34.04%	33.61%	33.23%	32.60%	31.75%
4640 - North Central	48.96%	48.71%	48.34%	47.44%	46.70%	47.20%	46.45%	45.77%	45.27%	45.23%	45.24%	44.55%	43.77%	43.34%	42.72%	41.10%	40.42%	40.15%	40.00%	38.87%	37.51%
4650 - Winnipeg	11528.2%	11562.8%	11522.6%	11366.3%	11249.0%	11415.3%	11300.9%	11215.6%	11099.6%	10963.4%	10798.1%	10573.1%	10336.4%	10187.4%	10069.7%	10016.2%	9861.1%	9792.7%	9712.6%	9530.1%	9313.4%
4660 - Interlake	49.92%	50.05%	50.48%	50.34%	49.98%	50.80%	50.11%	49.80%	50.21%	50.65%	50.62%	50.26%	49.69%	49.47%	49.06%	47.94%	47.32%	47.10%	46.86%	46.33%	45.51%
4670 & 4680 - Parklands & North	3.04%	3.00%	2.94%	2.88%	2.80%	2.80%	2.77%	2.76%	2.76%	2.77%	2.78%	2.74%	2.67%	2.61%	2.56%	2.50%	2.45%	2.42%	2.38%	2.33%	2.25%
4710 - Regina - Moose Mountain	61.49%	61.63%	61.15%	59.87%	58.41%	58.88%	58.26%	57.84%	57.39%	56.90%	56.31%	55.03%	53.64%	52.52%	51.26%	50.28%	49.17%	48.57%	47.88%	46.78%	45.41%
4720 - Swift Current - Moose Jaw	16.74%	16.55%	16.16%	15.63%	14.97%	14.84%	14.60%	14.36%	14.09%	13.87%	13.63%	13.28%	12.87%	12.51%	12.10%	11.78%	11.41%	11.19%	10.96%	10.56%	10.15%
4730 - Saskatoon - Biggar	62.45%	62.80%	62.29%	61.20%	59.69%	60.16%	59.68%	59.37%	59.06%	58.91%	58.69%	57.83%	56.79%	55.86%	54.75%	54.70%	53.76%	53.02%	52.49%	51.38%	49.96%
4740 - Yorkton - Melville	28.58%	28.07%	27.38%	26.41%	25.40%	25.32%	24.71%	24.34%	23.80%	23.25%	22.70%	22.00%	21.29%	20.64%	19.99%	19.23%	18.65%	18.15%	17.69%	17.03%	16.30%
4750 & 4760 - Prince Albert & Northern	7.33%	7.28%	7.16%	7.00%	6.77%	6.79%	6.70%	6.67%	6.65%	6.63%	6.60%	6.49%	6.36%	6.24%	6.11%	5.76%	5.63%	5.56%	5.49%	5.35%	5.17%
4810 - Lethbridge - Medicine Hat	45.94%	45.28%	44.85%	44.19%	43.74%	44.90%	44.78%	44.89%	45.02%	45.00%	43.59%	43.05%	42.70%	42.57%	42.39%	42.24%	41.86%	41.67%	41.50%	41.25%	41.04%
4820 - Camrose - Drumheller	24.25%	23.82%	23.36%	23.00%	22.63%	22.94%	22.95%	23.05%	23.00%	22.87%	22.62%	22.28%	21.95%	21.65%	21.44%	21.53%	21.28%	21.09%	20.86%	20.62%	20.40%
4830 - Calgary	641.42%	643.08%	649.58%	656.51%	664.66%	685.23%	688.83%	691.26%	697.24%	704.35%	711.37%	721.36%	730.92%	738.04%	744.89%	743.60%	749.73%	753.43%	757.25%	763.14%	770.61%
4840 - Banff - Jasper - Rocky Mountain House	9.46%	9.36%	9.30%	9.34%	9.31%	9.65%	9.71%	9.85%	9.97%	10.08%	10.19%	10.18%	10.08%	10.01%	9.89%	9.97%	9.83%	9.72%	9.60%	9.45%	9.34%
4850 - Red Deer	132.62%	132.16%	131.49%	131.37%	131.46%	135.56%	136.82%	138.02%	138.73%	139.00%	139.68%	139.54%	140.18%	140.19%	140.59%	142.09%	142.46%	143.24%	144.07%	145.57%	147.14%
4860 - Edmonton	610.60%	611.62%	609.68%	611.44%	613.59%	583.70%	583.80%	582.66%	577.76%	571.95%	568.14%	565.45%	563.87%	562.69%	562.30%	570.33%	570.47%	569.55%	568.01%	567.45%	567.06%
4870 - Athabasca - Grande Prairie - Peace River	8.01%	7.89%	7.82%	7.75%	7.74%	7.87%	7.87%	7.90%	8.00%	8.08%	8.01%	7.90%	7.86%	7.79%	7.66%	7.58%	7.54%	7.51%	7.47%	7.45%	7.44%
4880 - Wood Buffalo - Cold Lake	7.60%	7.50%	7.54%	7.57%	7.44%	7.56%	7.51%	7.51%	7.42%	7.30%	7.54%	7.60%	7.59%	7.46%	7.43%	7.54%	7.63%	7.73%	7.77%	7.76%	7.81%
Regional Average without Winnipeg (=100%)	9.23	9.28	9.37	9.51	9.68	9.61	9.74	9.84	9.96	10.08	10.22	10.42	10.67	10.86	11.05	11.15	11.35	11.51	11.68	11.92	12.25

Relative Population Density with Winnipeg set to 56 people / square kilometer and rising by 1% per year																					
Geography	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
4610 - Southeast	38.67%	39.09%	39.47%	39.34%	38.93%	39.81%	39.71%	39.74%	39.87%	39.87%	39.78%	39.52%	38.83%	38.59%	38.37%	37.80%	37.66%	37.77%	38.00%	37.87%	37.53%
4620 - South Central	57.55%	57.27%	56.85%	55.63%	54.26%	54.53%	53.98%	53.61%	53.41%	53.42%	53.14%	52.36%	51.34%	50.65%	50.22%	49.21%	48.67%	48.52%	48.48%	48.17%	47.61%
4630 - Southwest	45.19%	44.83%	44.15%	43.09%	41.54%	41.45%	40.74%	40.59%	40.35%	39.88%	39.36%	38.56%	37.61%	36.97%	36.27%	34.83%	34.04%	33.61%	33.23%	32.60%	31.75%
4640 - North Central	48.96%	48.71%	48.34%	47.44%	46.70%	47.20%	46.45%	45.77%	45.27%	45.23%	45.24%	44.55%	43.77%	43.34%	42.72%	41.10%	40.42%	40.15%	40.00%	38.87%	37.51%
4650 - Winnipeg	607.04%	609.36%	609.96%	606.86%	601.77%	612.69%	610.48%	609.87%	609.06%	607.55%	605.09%	599.43%	591.66%	586.75%	582.61%	583.13%	578.40%	576.13%	573.46%	567.36%	557.87%
4660 - Interlake	49.92%	50.05%	50.48%	50.34%	49.98%	50.80%	50.11%	49.80%	50.21%	50.65%	50.62%	50.26%	49.69%	49.47%	49.06%	47.94%	47.32%	47.10%	46.86%	46.33%	45.51%
4670 & 4680 - Parklands & North	3.04%	3.00%	2.94%	2.88%	2.80%	2.80%	2.77%	2.76%	2.76%	2.77%	2.78%	2.74%	2.67%	2.61%	2.56%	2.50%	2.45%	2.42%	2.38%	2.33%	2.25%
4710 - Regina - Moose Mountain	61.49%	61.63%	61.15%	59.87%	58.41%	58.88%	58.26%	57.84%	57.39%	56.90%	56.31%	55.03%	53.64%	52.52%	51.26%	50.28%	49.17%	48.57%	47.88%	46.78%	45.41%
4720 - Swift Current - Moose Jaw	16.74%	16.55%	16.16%	15.63%	14.97%	14.84%	14.60%	14.36%	14.09%	13.87%	13.63%	13.28%	12.87%	12.51%	12.10%	11.78%	11.41%	11.19%	10.96%	10.58%	10.15%
4730 - Saskatoon - Biggar	62.45%	62.80%	62.29%	61.20%	59.69%	60.16%	59.68%	59.37%	59.06%	58.91%	58.69%	57.83%	56.79%	55.86%	54.75%	54.70%	53.76%	53.02%	52.49%	51.38%	49.96%
4740 - Yorkton - Melville	28.58%	28.07%	27.38%	26.41%	25.40%	25.32%	24.71%	24.34%	23.80%	23.25%	22.70%	22.00%	21.29%	20.64%	19.99%	19.23%	18.65%	18.15%	17.69%	17.03%	16.30%
4750 & 4760 - Prince Albert & Northern	7.33%	7.28%	7.16%	7.00%	6.77%	6.79%	6.70%	6.67%	6.65%	6.63%	6.60%	6.49%	6.36%	6.24%	6.11%	5.76%	5.63%	5.56%	5.49%	5.35%	5.17%
4810 - Lethbridge - Medicine Hat	45.94%	45.28%	44.85%	44.19%	43.74%	44.90%	44.78%	44.89%	45.02%	45.00%	43.59%	43.05%	42.70%	42.57%	42.39%	42.24%	41.86%	41.67%	41.50%	41.25%	41.04%
4820 - Camrose - Drumheller	24.25%	23.82%	23.36%	23.00%	22.63%	22.94%	22.95%	23.05%	23.00%	22.87%	22.62%	22.28%	21.95%	21.65%	21.44%	21.53%	21.28%	21.09%	20.86%	20.62%	20.40%
4830 - Calgary	641.42%	643.08%	649.58%	656.51%	664.66%	685.23%	688.83%	691.26%	697.24%	704.35%	711.37%	721.36%	730.92%	738.04%	744.89%	743.60%	749.73%	753.43%	757.25%	763.14%	770.61%
4840 - Banff - Jasper - Rocky Mountain House	9.46%	9.36%	9.30%	9.34%	9.31%	9.65%	9.71%	9.85%	9.97%	10.08%	10.19%	10.18%	10.08%	10.01%	9.89%	9.97%	9.83%	9.72%	9.60%	9.45%	9.34%
4850 - Red Deer	132.62%	132.16%	131.49%	131.37%	131.46%	135.56%	136.82%	138.02%	138.73%	139.00%	139.68%	139.54%	140.18%	140.19%	140.59%	142.09%	142.46%	143.24%	144.07%	145.57%	147.14%
4860 - Edmonton	610.60%	611.62%	609.68%	611.44%	613.59%	583.70%	583.80%	582.66%	577.76%	571.95%	568.14%	565.45%	563.87%	562.89%	562.30%	570.33%	570.47%	569.55%	568.01%	567.45%	567.06%
4870 - Athabasca - Grande Prairie - Peace River	8.01%	7.89%	7.82%	7.75%	7.74%	7.87%	7.87%	7.90%	8.00%	8.08%	8.01%	7.90%	7.86%	7.79%	7.66%	7.58%	7.54%	7.51%	7.47%	7.45%	7.44%
4880 - Wood Buffalo - Cold Lake	7.80%	7.50%	7.54%	7.57%	7.44%	7.56%	7.51%	7.51%	7.42%	7.30%	7.54%	7.60%	7.59%	7.46%	7.43%	7.54%	7.63%	7.73%	7.77%	7.76%	7.81%
Regional Average without Winnipeg (=100%)	9.23	9.28	9.37	9.51	9.68	9.61	9.74	9.84	9.96	10.08	10.22	10.42	10.67	10.86	11.05	11.15	11.35	11.51	11.68	11.92	12.25

Percentage Est of Pub Emp in Labour Force																				
Geography	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
Manitoba	22.75%	22.53%	22.60%	23.19%	23.52%	23.88%	23.61%	23.73%	23.81%	24.18%	23.84%	23.58%	23.34%	24.26%	24.77%	24.97%	25.07%	25.80%	25.60%	26.10%
4610 - Southeast	19.21%	19.01%	18.84%	18.66%	19.46%	18.07%	19.15%	21.93%	22.82%	22.46%	18.88%	20.65%	20.73%	23.08%	19.69%	23.33%	23.82%	20.00%	19.52%	23.21%
4620 - South Central	17.15%	18.33%	17.55%	20.85%	19.49%	21.24%	21.05%	18.49%	14.52%	16.94%	19.76%	20.97%	16.73%	19.32%	20.32%	21.97%	22.01%	23.34%	20.76%	18.84%
4630 - Southwest	23.55%	24.91%	24.14%	21.37%	22.24%	21.73%	23.19%	22.59%	21.17%	23.18%	22.63%	23.12%	23.28%	23.12%	24.43%	26.15%	27.07%	26.80%	24.90%	26.78%
4640 - North Central	28.14%	22.27%	23.19%	21.70%	23.19%	25.12%	20.66%	25.45%	26.15%	25.35%	26.07%	24.54%	24.89%	27.27%	24.55%	25.62%	21.25%	23.98%	26.50%	28.38%
4650 - Winnipeg	22.83%	22.78%	23.44%	24.10%	24.33%	24.72%	24.49%	24.61%	25.07%	25.12%	25.01%	24.41%	24.16%	24.59%	25.43%	24.88%	25.31%	26.45%	26.46%	26.76%
4660 - Interlake	22.50%	21.47%	22.19%	25.33%	24.80%	25.00%	23.04%	22.47%	21.66%	23.16%	22.65%	21.35%	21.81%	22.92%	24.71%	24.20%	23.81%	26.27%	25.27%	24.09%
4670 & 680 - Parklands & North	24.56%	23.84%	20.52%	23.04%	23.66%	25.44%	25.22%	23.33%	22.69%	24.71%	24.18%	23.82%	24.54%	26.86%	27.82%	28.43%	27.45%	28.39%	29.65%	28.64%
Saskatchewan	21.58%	21.98%	22.35%	22.72%	22.50%	22.86%	22.88%	22.38%	22.13%	22.39%	22.68%	22.52%	22.49%	22.98%	23.56%	23.73%	24.27%	24.45%	24.36%	24.26%
4710 - Regina - Moose Mountain	22.50%	22.81%	22.90%	24.45%	23.91%	24.08%	24.22%	23.49%	23.93%	24.73%	24.03%	24.52%	23.28%	24.31%	25.35%	25.25%	24.77%	24.64%	25.08%	25.70%
4720 - Swift Current - Moose Jaw	19.60%	18.62%	21.43%	20.79%	20.43%	19.63%	19.47%	20.50%	20.24%	20.50%	21.86%	22.10%	22.00%	21.74%	21.42%	19.17%	21.01%	21.89%	18.61%	21.37%
4730 - Saskatoon - Biggar	22.65%	23.75%	23.82%	22.28%	23.46%	23.83%	23.90%	22.18%	22.75%	21.99%	22.18%	21.84%	22.74%	23.74%	24.53%	24.66%	25.41%	24.89%	26.70%	24.94%
4740 - Yorkton - Melville	17.36%	17.71%	15.70%	18.46%	17.14%	18.95%	20.48%	20.26%	20.45%	20.87%	18.24%	21.13%	19.25%	18.12%	18.35%	16.99%	21.37%	19.76%	23.33%	23.17%
4750 & 4760 - Prince Albert & Northern	21.88%	22.51%	23.43%	23.78%	22.66%	23.16%	22.26%	23.29%	20.41%	21.24%	23.94%	21.26%	22.60%	22.51%	22.58%	25.13%	24.64%	27.01%	23.12%	22.87%
Alberta	20.64%	20.92%	21.53%	21.36%	21.38%	20.86%	20.81%	19.85%	19.49%	19.74%	19.95%	19.57%	19.15%	18.94%	18.90%	18.80%	18.86%	18.50%	19.42%	20.18%
4810 - Lethbridge - Medicine Hat	20.44%	21.51%	20.45%	23.48%	20.99%	22.26%	23.25%	20.22%	21.12%	23.21%	21.65%	22.10%	21.52%	19.29%	18.57%	19.27%	18.91%	19.25%	21.59%	22.00%
4820 - Camrose - Drumheller	18.58%	20.18%	19.06%	21.27%	20.89%	21.03%	19.91%	17.65%	17.49%	18.25%	19.93%	18.21%	16.84%	19.48%	18.87%	17.57%	20.00%	17.12%	17.69%	20.96%
4830 - Calgary	18.41%	18.07%	18.27%	18.51%	18.02%	18.22%	19.02%	17.12%	17.60%	17.27%	18.42%	17.79%	16.62%	16.95%	15.72%	16.10%	16.47%	15.42%	17.71%	17.95%
4840 - Banff - Jasper - Rocky Mountain House	17.49%	17.31%	19.65%	18.72%	16.33%	16.42%	14.56%	17.29%	16.06%	13.20%	10.97%	16.21%	10.48%	12.66%	10.71%	12.32%	9.25%	10.28%	11.20%	14.93%
4850 - Red Deer	22.86%	23.05%	23.43%	21.18%	21.76%	17.80%	18.55%	18.30%	18.73%	19.17%	17.64%	21.05%	19.28%	20.77%	20.07%	19.80%	19.38%	19.14%	21.69%	19.70%
4860 - Edmonton	23.19%	23.85%	25.61%	24.64%	25.54%	24.58%	23.28%	23.37%	22.17%	22.88%	22.15%	22.02%	22.51%	21.60%	23.11%	22.48%	22.22%	22.50%	22.02%	23.94%
4870 - Athabasca - Grande Prairie - Peace River	21.10%	19.56%	20.99%	21.46%	20.54%	16.55%	18.13%	17.84%	16.93%	18.39%	18.95%	15.82%	19.37%	17.10%	18.95%	16.54%	17.75%	18.82%	16.65%	16.48%
4880 - Wood Buffalo - Cold Lake	18.94%	20.57%	18.16%	13.39%	18.63%	21.73%	23.59%	22.77%	21.54%	18.41%	20.97%	20.04%	14.48%	16.89%	17.39%	19.83%	17.75%	17.02%	18.15%	17.40%
Regional Average	21.15%	21.11%	21.14%	21.37%	21.37%	21.48%	21.37%	21.16%	20.68%	21.05%	21.01%	21.15%	20.36%	21.12%	21.13%	21.48%	21.48%	21.65%	21.83%	22.41%

Relative Percentage Est of Pub Emp in Labour Force																					
Geography	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
4610 - Southeast	90.84%	90.07%	89.15%	87.30%	91.04%	84.13%	89.60%	103.65%	110.35%	106.69%	89.88%	97.65%	101.86%	109.29%	93.21%	108.60%	110.87%	92.38%	89.40%	103.58%
4620 - South Central	81.12%	86.86%	83.03%	97.55%	91.19%	98.88%	98.51%	87.38%	70.24%	80.48%	94.08%	99.15%	82.20%	91.49%	96.17%	102.25%	102.47%	107.84%	95.10%	84.09%
4630 - Southwest	111.36%	118.00%	114.19%	99.99%	104.07%	101.17%	108.53%	106.79%	102.40%	110.09%	107.75%	109.34%	114.38%	109.50%	115.64%	121.73%	126.01%	123.81%	114.07%	119.52%
4640 - North Central	133.07%	105.54%	109.70%	101.52%	108.49%	116.97%	96.66%	120.28%	126.46%	120.40%	124.09%	116.03%	122.28%	129.16%	116.17%	119.24%	98.91%	110.78%	121.37%	126.68%
4650 - Winnipeg	107.96%	107.92%	110.88%	112.77%	113.82%	115.09%	114.59%	116.31%	121.24%	119.33%	119.05%	115.41%	118.67%	116.45%	120.37%	115.81%	117.83%	122.17%	121.21%	119.44%
4660 - Interlake	106.40%	101.71%	104.98%	118.51%	116.05%	116.40%	107.80%	106.20%	104.77%	110.00%	107.83%	100.94%	107.14%	108.55%	116.93%	112.64%	110.83%	121.34%	115.74%	107.50%
4670 & 680 - Parklands & North	116.14%	112.96%	97.09%	107.82%	110.68%	118.44%	118.02%	110.26%	109.72%	117.40%	115.12%	112.64%	120.54%	127.20%	131.66%	132.33%	127.78%	131.15%	135.81%	127.82%
4710 - Regina - Moose Mountain	106.41%	108.06%	108.32%	114.40%	111.87%	112.13%	113.32%	111.01%	115.72%	117.46%	114.41%	115.95%	114.36%	115.13%	119.99%	117.51%	115.30%	113.84%	114.89%	114.69%
4720 - Swift Current - Moose Jaw	92.69%	88.20%	101.37%	97.27%	95.57%	91.39%	91.10%	96.91%	97.92%	97.38%	104.08%	104.52%	108.08%	102.95%	101.36%	89.20%	97.82%	101.10%	85.26%	95.36%
4730 - Saskatoon - Biggar	107.11%	112.51%	112.67%	104.22%	109.74%	110.95%	111.85%	104.81%	110.05%	104.45%	105.57%	103.28%	111.73%	112.42%	116.12%	114.78%	118.27%	114.97%	122.32%	111.30%
4740 - Yorkton - Melville	82.07%	83.89%	74.28%	86.37%	80.21%	88.25%	95.83%	95.77%	98.91%	99.15%	86.85%	99.91%	94.56%	85.81%	86.83%	79.08%	99.49%	91.27%	106.88%	103.40%
4750 & 4760 - Prince Albert & Northern	103.47%	106.66%	110.82%	111.28%	106.03%	107.84%	104.14%	110.08%	98.71%	100.91%	113.98%	100.51%	111.02%	106.62%	106.87%	116.97%	114.70%	124.78%	105.89%	102.09%
4810 - Lethbridge - Medicine Hat	96.64%	101.92%	96.74%	109.85%	98.22%	103.65%	108.79%	95.58%	102.17%	110.28%	103.06%	104.52%	105.72%	91.35%	87.87%	89.70%	88.04%	88.91%	98.91%	98.20%
4820 - Camrose - Drumheller	87.86%	95.63%	90.16%	99.52%	97.73%	97.91%	93.18%	83.44%	84.62%	86.69%	94.90%	86.11%	82.71%	92.24%	89.30%	81.78%	93.09%	79.06%	81.02%	93.55%
4830 - Calgary	87.03%	85.63%	86.44%	86.61%	84.33%	84.82%	89.00%	80.93%	85.12%	82.03%	87.69%	84.14%	81.63%	80.27%	74.42%	74.95%	76.66%	71.24%	81.11%	80.13%
4840 - Banff - Jasper - Rocky Mountain House	82.72%	82.03%	92.97%	87.57%	76.41%	76.46%	68.12%	81.72%	77.65%	62.72%	52.21%	76.66%	51.50%	59.95%	50.71%	57.34%	43.06%	47.48%	51.30%	66.64%
4850 - Red Deer	108.08%	109.23%	110.84%	99.10%	101.83%	82.87%	86.80%	86.48%	90.61%	91.06%	83.97%	99.53%	94.70%	98.37%	94.99%	92.15%	90.22%	88.41%	99.38%	87.94%
4860 - Edmonton	109.65%	113.01%	121.15%	115.27%	119.48%	114.45%	108.92%	110.46%	107.25%	108.69%	105.45%	104.12%	110.57%	102.31%	109.38%	104.62%	103.41%	103.94%	100.89%	106.86%
4870 - Athabasca - Grande Prairie - Peace River	99.80%	92.69%	99.30%	100.42%	96.08%	77.05%	84.83%	84.31%	81.90%	87.34%	90.22%	74.82%	95.18%	80.98%	89.69%	76.99%	82.61%	86.92%	76.29%	73.55%
4880 - Wood Buffalo - Cold Lake	89.58%	97.48%	85.92%	62.65%	87.16%	101.17%	110.39%	107.62%	104.19%	87.45%	99.82%	94.77%	71.16%	79.97%	82.31%	92.32%	82.62%	78.61%	83.15%	77.68%
Regional Average (=100%)	21.15%	21.11%	21.14%	21.37%	21.37%	21.48%	21.37%	21.16%	20.68%	21.05%	21.01%	21.15%	20.36%	21.12%	21.13%	21.48%	21.48%	21.65%	21.83%	22.41%

SEWE & TE Absolute Growth, Percentage Growth and Index with UE Rate by Economic Region

Geography	SEWE			UE Rate	Total Employment		
	Growth	% Growth	Index	Change	Growth	% Growth	Index
Manitoba	-2.60	-10.36%	-269.1	-3.1%	81.80	16.19%	13,258.0
4610 - Southeast	1.30	76.47%	995.1	-1.6%	15.00	41.78%	6,273.7
4620 - South Central	0.30	27.27%	81.9	-2.5%	4.20	18.50%	777.9
4630 - Southwest	-0.90	-29.03%	-261.0	-2.0%	-0.60	-1.16%	-6.9
4640 - North Central	-0.40	-30.77%	-123.0	-4.9%	3.90	21.20%	827.5
4650 - Winnipeg	-2.60	-18.98%	-492.9	-3.4%	50.70	16.87%	8,562.6
4660 - Interlake	0.20	8.70%	17.4	-2.5%	11.10	32.55%	3,616.8
4670 & 680 - Parklands & North	-0.30	-16.67%	-50.0	-3.5%	-2.60	-6.21%	-161.2
Saskatchewan	1.70	7.69%	130.9	-2.7%	29.70	6.43%	1,911.6
4710 - Regina - Moose Mountain	0.50	8.06%	40.4	-2.1%	10.60	7.75%	822.2
4720 - Swift Current - Moose Jaw	0.50	21.74%	108.8	-0.8%	-2.50	-4.39%	-109.5
4730 - Saskatoon - Biggar	0.90	13.64%	122.9	-4.1%	25.50	19.51%	4,980.1
4740 - Yorkton - Melville	-0.70	-30.43%	-212.8	-1.6%	-5.10	-11.16%	-568.6
4750 & 4760 - PA & Northern	0.50	10.64%	53.2	-3.3%	1.30	1.42%	18.5
Alberta	44.20	75.04%	33,201.9	-6.2%	683.00	57.51%	393,159.5
4810 - Lethbridge - Medicine Hat	1.20	21.82%	262.1	-5.3%	45.10	48.81%	22,035.1
4820 - Camrose - Drumheller	3.80	108.57%	4,129.8	-4.1%	28.40	36.09%	10,258.8
4830 - Calgary	19.00	107.34%	20,415.9	-5.6%	315.20	80.86%	255,131.8
4840 - Banff - Jasper - RkyMtnH	2.50	156.25%	3,910.2	-7.1%	18.60	60.00%	11,171.2
4850 - Red Deer	3.00	69.77%	2,095.1	-5.5%	37.30	61.86%	23,095.9
4860 - Edmonton	9.40	47.96%	4,512.7	-7.0%	165.10	39.57%	65,400.9
4870 - Athabasca - GrdPr - PcRvr	3.90	76.47%	2,985.3	-6.4%	47.30	57.89%	27,411.6
4880 - Wood Buffalo - Cold Lake	1.40	87.50%	1,226.2	-7.8%	26.00	71.04%	18,488.4

Growth is measured in thousands

SEWE & TE Absolute Growth, Percentage Growth and Index with UE Rate Sorted by TE Absolute Growth

Geography	SEWE			UE Rate	Total Employment		
	Growth	% Growth	Index	Change	Growth	% Growth	Index
4830 - Calgary	19.00	107.34%	20,415.9	-5.6%	315.20	80.86%	255,131.8
4860 - Edmonton	9.40	47.96%	4,512.7	-7.0%	165.10	39.57%	65,400.9
4650 - Winnipeg	-2.60	-18.98%	-492.9	-3.4%	50.70	16.87%	8,562.6
4870 - Athabasca - GrdPr - PcRvr	3.90	76.47%	2,985.3	-6.4%	47.30	57.89%	27,411.6
4810 - Lethbridge - Medicine Hat	1.20	21.82%	262.1	-5.3%	45.10	48.81%	22,035.1
4850 - Red Deer	3.00	69.77%	2,095.1	-5.5%	37.30	61.86%	23,095.9
4820 - Camrose - Drumheller	3.80	108.57%	4,129.8	-4.1%	28.40	36.09%	10,258.8
4880 - Wood Buffalo - Cold Lake	1.40	87.50%	1,226.2	-7.8%	26.00	71.04%	18,488.4
4730 - Saskatoon - Biggar	0.90	13.64%	122.9	-4.1%	25.50	19.51%	4,980.1
4840 - Banff - Jasper - RkyMtnH	2.50	156.25%	3,910.2	-7.1%	18.60	60.00%	11,171.2
4610 - Southeast	1.30	76.47%	995.1	-1.6%	15.00	41.78%	6,273.7
4660 - Interlake	0.20	8.70%	17.4	-2.5%	11.10	32.55%	3,616.8
4710 - Regina - Moose Mountain	0.50	8.06%	40.4	-2.1%	10.60	7.75%	822.2
4620 - South Central	0.30	27.27%	81.9	-2.5%	4.20	18.50%	777.9
4640 - North Central	-0.40	-30.77%	-123.0	-4.9%	3.90	21.20%	827.5
4750 & 4760 - PA & Northern	0.50	10.64%	53.2	-3.3%	1.30	1.42%	18.5
4630 - Southwest	-0.90	-29.03%	-261.0	-2.0%	-0.60	-1.16%	-6.9
4720 - Swift Current - Moose Jaw	0.50	21.74%	108.8	-0.8%	-2.50	-4.39%	-109.5
4670 & 680 - Parklands & North	-0.30	-16.67%	-50.0	-3.5%	-2.60	-6.21%	-161.2
4740 - Yorkton - Melville	-0.70	-30.43%	-212.8	-1.6%	-5.10	-11.16%	-568.6
Alberta	44.20	75.04%	33,201.9	-6.2%	683.00	57.51%	393,159.5
Manitoba	-2.60	-10.36%	-269.1	-3.1%	81.80	16.19%	13,258.0
Saskatchewan	1.70	7.69%	130.9	-2.7%	29.70	6.43%	1,911.6

Growth is measured in thousands

SEWE & TE Absolute Growth, Percentage Growth and Index with UE Rate Sorted by TE Percentage Growth

Geography	SEWE			UE Rate	Total Employment		
	Growth	% Growth	Index	Change	Growth	% Growth	Index
4830 - Calgary	19.00	107.34%	20,415.9	-5.6%	315.20	80.86%	255,131.8
4880 - Wood Buffalo - Cold Lake	1.40	87.50%	1,226.2	-7.8%	26.00	71.04%	18,488.4
4850 - Red Deer	3.00	69.77%	2,095.1	-5.5%	37.30	61.86%	23,095.9
4840 - Banff - Jasper - RkyMtnH	2.50	156.25%	3,910.2	-7.1%	18.60	60.00%	11,171.2
4870 - Athabasca - GrdPr - PcRvr	3.90	76.47%	2,985.3	-6.4%	47.30	57.89%	27,411.6
4810 - Lethbridge - Medicine Hat	1.20	21.82%	262.1	-5.3%	45.10	48.81%	22,035.1
4610 - Southeast	1.30	76.47%	995.1	-1.6%	15.00	41.78%	6,273.7
4860 - Edmonton	9.40	47.96%	4,512.7	-7.0%	165.10	39.57%	65,400.9
4820 - Camrose - Drumheller	3.80	108.57%	4,129.8	-4.1%	28.40	36.09%	10,258.8
4660 - Interlake	0.20	8.70%	17.4	-2.5%	11.10	32.55%	3,616.8
4640 - North Central	-0.40	-30.77%	-123.0	-4.9%	3.90	21.20%	827.5
4730 - Saskatoon - Biggar	0.90	13.64%	122.9	-4.1%	25.50	19.51%	4,980.1
4620 - South Central	0.30	27.27%	81.9	-2.5%	4.20	18.50%	777.9
4650 - Winnipeg	-2.60	-18.98%	-492.9	-3.4%	50.70	16.87%	8,562.6
4710 - Regina - Moose Mountain	0.50	8.06%	40.4	-2.1%	10.60	7.75%	822.2
4750 & 4760 - PA & Northern	0.50	10.64%	53.2	-3.3%	1.30	1.42%	18.5
4630 - Southwest	-0.90	-29.03%	-261.0	-2.0%	-0.60	-1.16%	-6.9
4720 - Swift Current - Moose Jaw	0.50	21.74%	108.8	-0.8%	-2.50	-4.39%	-109.5
4670 & 680 - Parklands & North	-0.30	-16.67%	-50.0	-3.5%	-2.60	-6.21%	-161.2
4740 - Yorkton - Melville	-0.70	-30.43%	-212.8	-1.6%	-5.10	-11.16%	-568.6
Alberta	44.20	75.04%	33,201.9	-6.2%	683.00	57.51%	393,159.5
Manitoba	-2.60	-10.36%	-269.1	-3.1%	81.80	16.19%	13,258.0
Saskatchewan	1.70	7.69%	130.9	-2.7%	29.70	6.43%	1,911.6

Growth is measured in thousands

SEWE & TE Absolute Growth, Percentage Growth and Index with UE Rate Sorted by TE Index

Geography	SEWE			UE Rate	Total Employment		
	Growth	% Growth	Index	Change	Growth	% Growth	Index
4830 - Calgary	19.00	107.34%	20,415.9	-5.6%	315.20	80.86%	255,131.8
4860 - Edmonton	9.40	47.96%	4,512.7	-7.0%	165.10	39.57%	65,400.9
4870 - Athabasca - GrdPr - PcRvr	3.90	76.47%	2,985.3	-6.4%	47.30	57.89%	27,411.6
4850 - Red Deer	3.00	69.77%	2,095.1	-5.5%	37.30	61.86%	23,095.9
4810 - Lethbridge - Medicine Hat	1.20	21.82%	262.1	-5.3%	45.10	48.81%	22,035.1
4880 - Wood Buffalo - Cold Lake	1.40	87.50%	1,226.2	-7.8%	26.00	71.04%	18,488.4
4840 - Banff - Jasper - RkyMtnH	2.50	156.25%	3,910.2	-7.1%	18.60	60.00%	11,171.2
4820 - Camrose - Drumheller	3.80	108.57%	4,129.8	-4.1%	28.40	36.09%	10,258.8
4650 - Winnipeg	-2.60	-18.98%	-492.9	-3.4%	50.70	16.87%	8,562.6
4610 - Southeast	1.30	76.47%	995.1	-1.6%	15.00	41.78%	6,273.7
4730 - Saskatoon - Biggar	0.90	13.64%	122.9	-4.1%	25.50	19.51%	4,980.1
4660 - Interlake	0.20	8.70%	17.4	-2.5%	11.10	32.55%	3,616.8
4640 - North Central	-0.40	-30.77%	-123.0	-4.9%	3.90	21.20%	827.5
4710 - Regina - Moose Mountain	0.50	8.06%	40.4	-2.1%	10.60	7.75%	822.2
4620 - South Central	0.30	27.27%	81.9	-2.5%	4.20	18.50%	777.9
4750 & 4760 - PA & Northern	0.50	10.64%	53.2	-3.3%	1.30	1.42%	18.5
4630 - Southwest	-0.90	-29.03%	-261.0	-2.0%	-0.60	-1.16%	-6.9
4720 - Swift Current - Moose Jaw	0.50	21.74%	108.8	-0.8%	-2.50	-4.39%	-109.5
4670 & 680 - Parklands & North	-0.30	-16.67%	-50.0	-3.5%	-2.60	-6.21%	-161.2
4740 - Yorkton - Melville	-0.70	-30.43%	-212.8	-1.6%	-5.10	-11.16%	-568.6
Alberta	44.20	75.04%	33,201.9	-6.2%	683.00	57.51%	393,159.5
Manitoba	-2.60	-10.36%	-269.1	-3.1%	81.80	16.19%	13,258.0
Saskatchewan	1.70	7.69%	130.9	-2.7%	29.70	6.43%	1,911.6

Growth is measured in thousands

SEWE & TE Absolute Growth, Percentage Growth and Index with UE Rate Sorted by SEWE Absolute Growth

Geography	SEWE			UE Rate	Total Employment		
	Growth	% Growth	Index	Change	Growth	% Growth	Index
4830 - Calgary	19.00	107.34%	20,415.9	-5.6%	315.20	80.86%	255,131.8
4860 - Edmonton	9.40	47.96%	4,512.7	-7.0%	165.10	39.57%	65,400.9
4870 - Athabasca - GrdPr - PcRvr	3.90	76.47%	2,985.3	-6.4%	47.30	57.89%	27,411.6
4820 - Camrose - Drumheller	3.80	108.57%	4,129.8	-4.1%	28.40	36.09%	10,258.8
4850 - Red Deer	3.00	69.77%	2,095.1	-5.5%	37.30	61.86%	23,095.9
4840 - Banff - Jasper - RkyMtnH	2.50	156.25%	3,910.2	-7.1%	18.60	60.00%	11,171.2
4880 - Wood Buffalo - Cold Lake	1.40	87.50%	1,226.2	-7.8%	26.00	71.04%	18,488.4
4610 - Southeast	1.30	76.47%	995.1	-1.6%	15.00	41.78%	6,273.7
4810 - Lethbridge - Medicine Hat	1.20	21.82%	262.1	-5.3%	45.10	48.81%	22,035.1
4730 - Saskatoon - Biggar	0.90	13.64%	122.9	-4.1%	25.50	19.51%	4,980.1
4710 - Regina - Moose Mountain	0.50	8.06%	40.4	-2.1%	10.60	7.75%	822.2
4720 - Swift Current - Moose Jaw	0.50	21.74%	108.8	-0.8%	-2.50	-4.39%	-109.5
4750 & 4760 - PA & Northern	0.50	10.64%	53.2	-3.3%	1.30	1.42%	18.5
4620 - South Central	0.30	27.27%	81.9	-2.5%	4.20	18.50%	777.9
4660 - Interlake	0.20	8.70%	17.4	-2.5%	11.10	32.55%	3,616.8
4670 & 680 - Parklands & North	-0.30	-16.67%	-50.0	-3.5%	-2.60	-6.21%	-161.2
4640 - North Central	-0.40	-30.77%	-123.0	-4.9%	3.90	21.20%	827.5
4740 - Yorkton - Melville	-0.70	-30.43%	-212.8	-1.6%	-5.10	-11.16%	-568.6
4630 - Southwest	-0.90	-29.03%	-261.0	-2.0%	-0.60	-1.16%	-6.9
4650 - Winnipeg	-2.60	-18.98%	-492.9	-3.4%	50.70	16.87%	8,562.6
Alberta	44.20	75.04%	33,201.9	-6.2%	683.00	57.51%	393,159.5
Saskatchewan	1.70	7.69%	130.9	-2.7%	29.70	6.43%	1,911.6
Manitoba	-2.60	-10.36%	-269.1	-3.1%	81.80	16.19%	13,258.0

Growth is measured in thousands

SEWE & TE Absolute Growth, Percentage Growth and Index with UE Rate Sorted by SEWE Percentage Growth

Geography	SEWE			UE Rate	Total Employment		
	Growth	% Growth	Index	Change	Growth	% Growth	Index
4840 - Banff - Jasper - RkyMtnH	2.50	156.25%	3,910.2	-7.1%	18.60	60.00%	11,171.2
4820 - Camrose - Drumheller	3.80	108.57%	4,129.8	-4.1%	28.40	36.09%	10,258.8
4830 - Calgary	19.00	107.34%	20,415.9	-5.6%	315.20	80.86%	255,131.8
4880 - Wood Buffalo - Cold Lake	1.40	87.50%	1,226.2	-7.8%	26.00	71.04%	18,488.4
4870 - Athabasca - GrdPr - PcRvr	3.90	76.47%	2,985.3	-6.4%	47.30	57.89%	27,411.6
4610 - Southeast	1.30	76.47%	995.1	-1.6%	15.00	41.78%	6,273.7
4850 - Red Deer	3.00	69.77%	2,095.1	-5.5%	37.30	61.86%	23,095.9
4860 - Edmonton	9.40	47.96%	4,512.7	-7.0%	165.10	39.57%	65,400.9
4620 - South Central	0.30	27.27%	81.9	-2.5%	4.20	18.50%	777.9
4810 - Lethbridge - Medicine Hat	1.20	21.82%	262.1	-5.3%	45.10	48.81%	22,035.1
4720 - Swift Current - Moose Jaw	0.50	21.74%	108.8	-0.8%	-2.50	-4.39%	-109.5
4730 - Saskatoon - Biggar	0.90	13.64%	122.9	-4.1%	25.50	19.51%	4,980.1
4750 & 4760 - PA & Northern	0.50	10.64%	53.2	-3.3%	1.30	1.42%	18.5
4660 - Interlake	0.20	8.70%	17.4	-2.5%	11.10	32.55%	3,616.8
4710 - Regina - Moose Mountain	0.50	8.06%	40.4	-2.1%	10.60	7.75%	822.2
4670 & 680 - Parklands & North	-0.30	-16.67%	-50.0	-3.5%	-2.60	-6.21%	-161.2
4650 - Winnipeg	-2.60	-18.98%	-492.9	-3.4%	50.70	16.87%	8,562.6
4630 - Southwest	-0.90	-29.03%	-261.0	-2.0%	-0.60	-1.16%	-6.9
4740 - Yorkton - Melville	-0.70	-30.43%	-212.8	-1.6%	-5.10	-11.16%	-568.6
4640 - North Central	-0.40	-30.77%	-123.0	-4.9%	3.90	21.20%	827.5
Alberta	44.20	75.04%	33,201.9	-6.2%	683.00	57.51%	393,159.5
Saskatchewan	1.70	7.69%	130.9	-2.7%	29.70	6.43%	1,911.6
Manitoba	-2.60	-10.36%	-269.1	-3.1%	81.80	16.19%	13,258.0

Growth is measured in thousands

SEWE & TE Absolute Growth, Percentage Growth and Index with UE Rate Sorted by SEWE Index

Geography	SEWE			UE Rate	Total Employment		
	Growth	% Growth	Index	Change	Growth	% Growth	Index
4830 - Calgary	19.00	107.34%	20,415.9	-5.6%	315.20	80.86%	255,131.8
4860 - Edmonton	9.40	47.96%	4,512.7	-7.0%	165.10	39.57%	65,400.9
4820 - Camrose - Drumheller	3.80	108.57%	4,129.8	-4.1%	28.40	36.09%	10,258.8
4840 - Banff - Jasper - RkyMtnH	2.50	156.25%	3,910.2	-7.1%	18.60	60.00%	11,171.2
4870 - Athabasca - GrdPr - PcRvr	3.90	76.47%	2,985.3	-6.4%	47.30	57.89%	27,411.6
4850 - Red Deer	3.00	69.77%	2,095.1	-5.5%	37.30	61.86%	23,095.9
4880 - Wood Buffalo - Cold Lake	1.40	87.50%	1,226.2	-7.8%	26.00	71.04%	18,488.4
4610 - Southeast	1.30	76.47%	995.1	-1.6%	15.00	41.78%	6,273.7
4810 - Lethbridge - Medicine Hat	1.20	21.82%	262.1	-5.3%	45.10	48.81%	22,035.1
4730 - Saskatoon - Biggar	0.90	13.64%	122.9	-4.1%	25.50	19.51%	4,980.1
4720 - Swift Current - Moose Jaw	0.50	21.74%	108.8	-0.8%	-2.50	-4.39%	-109.5
4620 - South Central	0.30	27.27%	81.9	-2.5%	4.20	18.50%	777.9
4750 & 4760 - PA & Northern	0.50	10.64%	53.2	-3.3%	1.30	1.42%	18.5
4710 - Regina - Moose Mountain	0.50	8.06%	40.4	-2.1%	10.60	7.75%	822.2
4660 - Interlake	0.20	8.70%	17.4	-2.5%	11.10	32.55%	3,616.8
4670 & 680 - Parklands & North	-0.30	-16.67%	-50.0	-3.5%	-2.60	-6.21%	-161.2
4640 - North Central	-0.40	-30.77%	-123.0	-4.9%	3.90	21.20%	827.5
4740 - Yorkton - Melville	-0.70	-30.43%	-212.8	-1.6%	-5.10	-11.16%	-568.6
4630 - Southwest	-0.90	-29.03%	-261.0	-2.0%	-0.60	-1.16%	-6.9
4650 - Winnipeg	-2.60	-18.98%	-492.9	-3.4%	50.70	16.87%	8,562.6
Alberta	44.20	75.04%	33,201.9	-6.2%	683.00	57.51%	393,159.5
Saskatchewan	1.70	7.69%	130.9	-2.7%	29.70	6.43%	1,911.6
Manitoba	-2.60	-10.36%	-269.1	-3.1%	81.80	16.19%	13,258.0

Growth is measured in thousands

SEWE & TE Absolute Growth, Percentage Growth and Index with UE Rate Sorted by UE Rate Change

Geography	SEWE			UE Rate	Total Employment		
	Growth	% Growth	Index	Change	Growth	% Growth	Index
4880 - Wood Buffalo - Cold Lake	1.40	87.50%	1,226.2	-7.8%	26.00	71.04%	18,488.4
4840 - Banff - Jasper - RkyMtnH	2.50	156.25%	3,910.2	-7.1%	18.60	60.00%	11,171.2
4860 - Edmonton	9.40	47.96%	4,512.7	-7.0%	165.10	39.57%	65,400.9
4870 - Athabasca - GrdPr - PcRvr	3.90	76.47%	2,985.3	-6.4%	47.30	57.89%	27,411.6
4830 - Calgary	19.00	107.34%	20,415.9	-5.6%	315.20	80.86%	255,131.8
4850 - Red Deer	3.00	69.77%	2,095.1	-5.5%	37.30	61.86%	23,095.9
4810 - Lethbridge - Medicine Hat	1.20	21.82%	262.1	-5.3%	45.10	48.81%	22,035.1
4640 - North Central	-0.40	-30.77%	-123.0	-4.9%	3.90	21.20%	827.5
4730 - Saskatoon - Biggar	0.90	13.64%	122.9	-4.1%	25.50	19.51%	4,980.1
4820 - Camrose - Drumheller	3.80	108.57%	4,129.8	-4.1%	28.40	36.09%	10,258.8
4670 & 680 - Parklands & North	-0.30	-16.67%	-50.0	-3.5%	-2.60	-6.21%	-161.2
4650 - Winnipeg	-2.60	-18.98%	-492.9	-3.4%	50.70	16.87%	8,562.6
4750 & 4760 - PA & Northern	0.50	10.64%	53.2	-3.3%	1.30	1.42%	18.5
4620 - South Central	0.30	27.27%	81.9	-2.5%	4.20	18.50%	777.9
4660 - Interlake	0.20	8.70%	17.4	-2.5%	11.10	32.55%	3,616.8
4710 - Regina - Moose Mountain	0.50	8.06%	40.4	-2.1%	10.60	7.75%	822.2
4630 - Southwest	-0.90	-29.03%	-261.0	-2.0%	-0.60	-1.16%	-6.9
4610 - Southeast	1.30	76.47%	995.1	-1.6%	15.00	41.78%	6,273.7
4740 - Yorkton - Melville	-0.70	-30.43%	-212.8	-1.6%	-5.10	-11.16%	-568.6
4720 - Swift Current - Moose Jaw	0.50	21.74%	108.8	-0.8%	-2.50	-4.39%	-109.5
Alberta	44.20	75.04%	33,201.9	-6.2%	683.00	57.51%	393,159.5
Manitoba	-2.60	-10.36%	-269.1	-3.1%	81.80	16.19%	13,258.0
Saskatchewan	1.70	7.69%	130.9	-2.7%	29.70	6.43%	1,911.6

Growth is measured in thousands